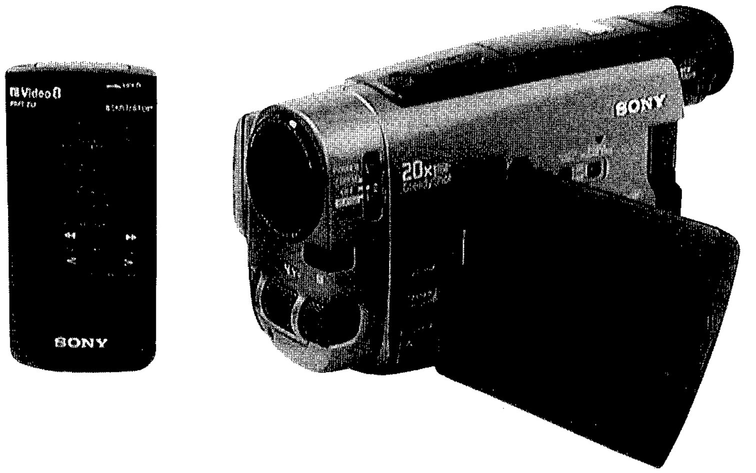
CCD-TRV100E
RMT-711/RMT-712

SERVICE MANUAL

AEP Model
UK Model
(RMT-712)
E Model
Hongkong Model
(RMT-711)

video Hi8
Handycam

TK MECHANISM



For MECHANISM ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅵ " (9-973-446-11).

SPECIFICATIONS

Video Camera Recorder

System

Video recording system
Four rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed
SP mode: Approx. 20 mm (13/16 in)/sec
LP mode: Approx. 10 mm (13/32 in)/sec (playback only)
Recording time
SP mode: 1.5 hours (E5/P5-90)
Playback time
SP mode: 1.5 hours (E5/P5-90)
LP mode: 3 hours (E5/P5-90)
Fastforward/rewind time
Approx. 8 min (E5/P5-90)
Image device
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder (Colour)
Lens
Combined power zoom lens, 20x (digital), 10x (optical)
f = 5.4 – 54 mm (7/32 to 2 1/4 in.)
39 – 390 mm (1 9/16 – 15 3/8 in.) when converted into a 35 mm still camera
6.5 – 65 mm (9/32 – 2 5/8 in.) when recording 47 – 470 mm (1 7/8 – 18 5/8 in.) when converted to 35 mm still camera
F 1.8 – 2.4
Filter diameter 37 mm (1 1/2 in.), TTL autofocus system inner focus wide marco system
Colour temperature
Auto
Minimum illumination
4 lux (F 1.8)
Illumination range
4 to 100,000 lux
Recommended illumination
More than 100 lux

LCD screen

Picture
4 inches measured diagonally
80.6 x 58.9 mm (3 1/4 x 2 3/8 in.)
On-screen display
TN LCD/TFT active matrix method
Total dot number
112,086 (479 x 234)

Input and Output connectors

S video output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 Ω, unbalanced
Video output
Phono jack, 1 Vp-p, 75 Ω, unbalanced, sync negative
Audio output
Phono jacks (2: Stereo L and R)
327 mV, (at output impedance 47 kΩ)
impedance less than 2.2 kΩ
RFU DC OUT
Special minijack, DC 5 V
Headphones jack
Stereo minijack (ø 3.5 mm)
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Stereo minijack, 0.388 mV low impedance with 2.5 to 3.5 V DC, output impedance 6.8 kΩ (ø 3.5 mm)
Handycam Station Terminal
20 pin special connector

General

Power requirements
7.2 V (battery pack)
6.5 V (AC power adaptor)
Average power consumption
7.8 W during camera recording using the LCD
Installation
Vertically, horizontally
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
-20°C to +60°C (-4°F to +140°F)
Dimensions
Approx. 98 x 127 x 209 mm (w/h/d) (3 7/8 x 5 x 8 1/4 in.)
Mass
Approx. 1,130 g (2 lb 7 oz) excluding the battery pack, lithium battery, cassette, and shoulder strap
Approx. 1,387 g (2 lb 16 oz) including the battery pack NP-720, lithium battery CR2025, cassette E5/P5-90, and shoulder strap
Microphone
Electret condenser microphone, Stereo type

— Continued on next page —

Hi 8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

AC power adaptor

Power requirements
100 - 240 V AC, 50/60 Hz
Power consumption
22 W
Output voltage
DC OUT: 6.5 V, 2.0 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-720, NP-520, NP-500H lithium ion type
Operating temperature
0°C to 40 °C (32°F to 104°F)
Storage temperature
-20°C to +60°C (-4°F to +140°F)
Dimensions
Approx. 72 x 44 x 96 mm
(2 4/5 x 1 3/4 x 3 3/4 in.) including projecting parts and controls
Mass
Approx. 300 g (11 oz)

Handycam Station

S video output/Video output/ Audio output
Same specifications as video camera recorder
RFU DC OUT
Same specifications as video camera recorder
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
Handycam Station Terminal
20 pin special connectior
Operating temperature/Storage temperature
Same specifications as video camera recorder
Dimensions (w/h/d)
Approx. 153 x 45 x 163 mm
(6 1/8 x 1 13/16 x 6 1/2 in.)
Mass
Approx. 340 g (12 oz)

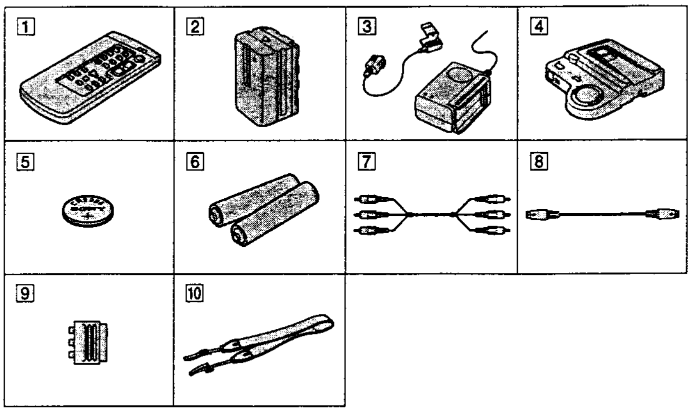
Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Checking Supplied Accessories

Check that the following accessories are supplied with your camcorder.



1 **Wireless remote commander** (1)

2 **NP-720 battery pack** (1)

3 **AC-V515 AC power adaptor** (1)

4 **HSA-V515 Handycam Station** (1)

5 **CR2025 lithium battery** (1)
(The lithium battery is already installed in your camcorder.)

6 **R6 (size AA) battery for remote commander** (2)

7 **A/V connecting cable** (1)

8 **S video connecting cable** (1)

9 **21-pin adaptor** (1)

10 **Shoulder strap** (1)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and brides.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, throught functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

TABLE OF CONTENTS

1. GENERAL

Getting Started

- Charging and Installing the Battery Pack ··· 1-1
- Inserting a Cassete ··· 1-2

Basic Operations

- Camera Recording ··· 1-3
- Using the Zoom feature ··· 1-4
- Shooting with the LCD Screen ··· 1-5
- Hints for Better Shooting ··· 1-5
- Checking the Recorded Picture ··· 1-6
- Playing Back a tape ··· 1-7
- Display the Date or Time When You Recorded-Data Code Function ··· 1-9
- Searching for the End of the Picture ··· 1-10

Advanced Operations

- Using the Alternative Power Sources ··· 1-10
- Using the Mains ··· 1-10
- Using the Handycam Station ··· 1-11
- Changing the Mode Settings ··· 1-12
- Letting the Subject Monitor the Shot ··· 1-13
- Fade-in and fade-out ··· 1-14
- Using the Wide Mode Function ··· 1-15
- Adjusting the Exposure ··· 1-16
- Focusing Manually ··· 1-17
- Shooting with Backlighting ··· 1-18
- Recording with the Date or Time ··· 1-18
- Inserting a Screne in the Middle of a Recorded Tape ··· 1-19
- Releasing the STEADY SHOT Function ··· 1-20
- Watching on a TV Screen ··· 1-20
- Returning to a Pre-registered Position ··· 1-22
- Lacation the Marking Position ··· 1-22
- Writing the RC Time Code on a Recorded Tape ··· 1-25
- Editing onto Another Tape ··· 1-26

Additional Information

- Changing the Lithium Battery in the Camcorder ··· 1-27
- Resetting the Date and Time ··· 1-28
- Playback Modes ··· 1-28
- Tips for Using the Battery Pack ··· 1-29
- Maintenance Information and Precautions ··· 1-31
- Using Your Camcorder Abroad ··· 1-33
- Trouble Check ··· 1-34
- Identifying the Parts ··· 1-36
- Warning Indicators ··· 1-40

2.SERVICE INFORMATION ··· 2-1

3.DISASSEMBLY

3-1. REMOVAL OF F PANEL ASSY ··· 3-1
3-2. REMOVAL OF CASSETT LID,CABINET(L)AND CABINET(BOTTOM)ASSY ··· 3-1
3-3. REMOVAL OF BATTERY HOLDER ASSY AND LS ASSY ··· 3-2
3-4. REMOVAL OF EVF CABINET ASSY,MECHANISM SECTION AND CONTROL SWITCH BLOCK(CF4220L3) ··· 3-2
3-5. REMOVAL OF VF-79,VF-78,LB-40,CK-68 BOARD, AND VF LENS ASSY ··· 3-3
3-6. REMOVAL OF CONTROL SWITCH BLOCK(CF4220R) ··· 3-3
3-7. REMOVAL OF SPEAKER AND LCD HINGE ··· 3-4
3-8. REMOVAL OF LCD SECTION ··· 3-5
3-9. REMOVAL OF LCD AND PD-61 BOARD ··· 3-5
3-10. REMOVAL OF SE-41P BOARD AND LENS BLOCK ··· 3-6
3-11. REMOVAL OF VC-158 BOARD ··· 3-6
3-12. REMOVAL OF CASSETTE COMPARTMENT BLOCK ··· 3-7
3-13. MOUNTING OF M906 STEPING MOTOR (SPB-01S01N)(ZOOM) ··· 3-7
3-14. MOUNTING OF MR SENSOR SECTION ··· 3-8
3-15. MOUNTING OF M904 IRIS(IRX-011) ··· 3-8
3-16. INTERNAL VIEWS ··· 3-9
3-17. CIRCUIT BOARDS LOCATION ··· 3-10

4. BLOCK DIAGRAMS

4-1. OVERALL BLOCK DIAGRAM ··· 4-1
4-2. CAMERA BLOCK DIAGRAM ··· 4-6
4-3. VIDEO BLOCK DIAGRAM ··· 4-11
4-4. SYSTEM CONTROL BLOCK DIAGRAM ··· 4-16
4-5. SERVO BLOCK DIAGRAM ··· 4-21
4-6. AUDIO BLOCK DIAGRAM ··· 4-24
4-7. LCD BLOCK DIAGRAM ··· 4-27
4-8. EVF BLOCK DIAGRAM ··· 4-31
4-9. POWER BLOCK DIAGRAM ··· 4-35

5. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

5-1. FRAME SCHEMATIC DIAGRAM ··· 5-1
5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS ··· 5-5
- ·VC-158(IMAGER CONTROL, CD-132P (CCD IMAGER),SCHEMATIC DIAGRAMS ··· 5-6
- ·VC-158(CAMERA),CD-132P(CCD IMAGER), SE-41P(CAMERA-SHAKE SENSOR) PRINTED WIRING BOARDS ··· 5-9
- ·VC-158(CAMERA)SCHEMATIC DIAGRAM ··· 5-14
- ·VC-158(CAMERA-SHAKE CORRECTION), SE-41P(CAMERA-SHAKE SENSOR) SCHEMATIC DIAGRAMS ··· 5-19
- ·VS-113(MAIN)PRINTED WIRING BOARD ··· 5-25
- ·VS-113(VTR 1)SCHEMATIC DIAGRAM ··· 5-32
- ·VS-113(VTR 2)SCHEMATIC DIAGRAM ··· 5-35
- ·VS-113(VIDEO)SCHEMATIC DIAGRAM ··· 5-39
- ·VS-113(I/O)SCHEMATIC DIAGRAM ··· 5-44
- ·VS-113(SYSTEM CONTROL),FP-689, FP-316 (MODE SENSOR)SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS ··· 5-47
- ·VS-113(MECHANISM CONTROL) SCHEMATIC DIAGRAM ··· 5-51
- ·VS-113(AUDIO),MS-26P(MIC), HJ-15P(HEADPHONE) SCHEMATIC DIAGRAMS ··· 5-56
- ·MS-26P(MIC),HJ-15P(HEADPHONE) PRINTED WIRING BOARDS ··· 5-61

- VS-113(POWER BLOCK) SCHEMATIC DIAGRAM 5-65
- CF-4220(SWITCH)SCHEMATIC DIAGRAM 5-69
- PD-61(LCD)SCHEMATIC DIAGRAM...............5-72
- PD-61(LCD)PRINTED WIRING BOARD 5-75
- VF-78(EXTERNAL LIGHT SENSOR),VF-79 (RGB DECODER),LB-40(BACK LIGHT), CK-68(RELAY),VC-158(EVF ON/OFF) SCHEMATIC DIAGRAMS 5-79
- VF-78(EXTERNAL LIGHT SENSOR),VF-79 (RGB DECODER),LB-40(BACK LIGHT), CK-68(RELAY)PRINTED WIRING BOARDS ...5-83
- ZF-1P(EASY CONNECTOR),TB-27(BATTERY TERMINAL)PRINTED WIRING BOARDS.........5-88

6. REPAIR PARTS LIST

6-1. EXPLODED VIEWS 6-1

6-1-1. OVERALL SECTION 6-1

6-1-2. CABINET(L),CABINET(BOTTOM), F PANEL SECTION 6-2

6-1-3. CABINET(R)SECTION..............................6-3

6-1-4. EVF CABINET SECTION...........................6-4

6-1-5. MAIN SECTION 6-5

6-1-6. CCD IMAGER,LCD SECTION.....................6-6

6-1-7. CASSETTE COMPARTMENT BLOCK SECTION....................................6-7

6-1-8. LS CHASSIS BLOCK SECTION 6-8

6-1-9. MECHANISM CHASSIS (1) SECTION 6-9

6-1-10. MECHANISM CHASSIS (2) SECTION 6-10

6-1-11. LENS DEVICE(LSV-111A) SECTION............6-11

6-2. ELECTRICAL PARTS LIST 6-12

7. ADJUSTMENTS

7-1. CAMERA SECTION ADJUSTMENT..................7-1

7-2. MECHANISM SECTION ADJUSTMENT 7-33

7-3. VIDEO SECTION ADJUSTMENT 7-41

7-4. AUDIO SECTION ADJUSTMENT......................7-67

7-5. SERVICE MODE OPERATION 7-75

Charging and Installing the Battery Pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC-V515 AC power adaptor.

Charging the Battery Pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the mains lead to mains.

(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When charging is completed, the CHARGE lamp goes out. Unplug the unit from mains, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.

Carga e instalación de la batería

Antes de utilizar la videocámara, primero tendrá que cargar e instalar la batería. Para cargar la batería, utilice el adaptador de CA AC-V515 suministrado.

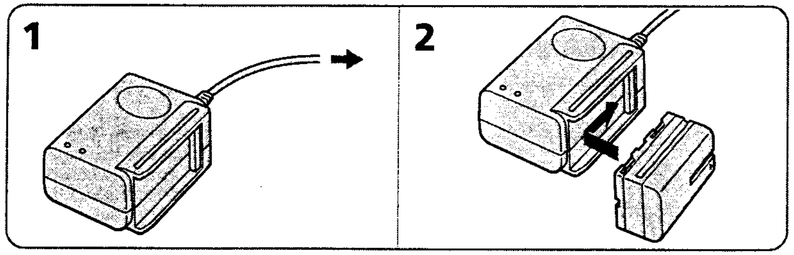
Carga de la batería

Cargue la batería en un lugar nivelado sin vibraciones.

(1) Conecte el cable de alimentación a una toma de la red.

(2) Alinee la superficie de la batería indicada con la marca ▶ con el borde del obturador del adaptador de CA.
Después encaje y deslice la batería en el sentido de la flecha.Se encenderá la lámpara CHARGE (anaranjada) y la carga comenzará.

Cuando termine la carga, la lámpara CHARGE se apagará. Desenchufe la unidad de la toma de la red, quite la batería e instálela en la videocámara. Usted también podrá utilizar la batería antes de que la misma se haya cargado por completo.



Charging Time

Battery pack	Charging time*
NP-720 (supplied)	190
NP-520	110
NP-500H	100

* Approximate minutes to charge an empty battery pack using the AC-V515. (Lower temperatures require a longer charging time.)

Battery Life

Battery pack	While recording**		While playing back on LCD ***
	LCD open	LCD close	
NP-720 (supplied)	60 (105)	85 (160)	115
NP-520	30 (50)	35 (65)	50
NP-500H	25 (45)	30 (60)	45

** Approximate minutes when recording while you repeat recording start/stop or zooming and turning the power on/off. The actual battery life may be shorter.
Approximate continuous recording time indoors is indicated in parentheses.

*** Approximate continuous playback time indoors.

To Remove the Battery Pack

Slide the battery pack in the direction of the arrow.

Tiempo de carga

Batería	Tiempo de carga*
NP-720 (suministrada)	190
NP-520	110
NP-500H	100

* Minutos aproximados para cargar una batería descargada empleando el AC-V515 (Cuando las temperaturas sean bajas se tardará más tiempo en realizar la carga.)

Duración de la batería

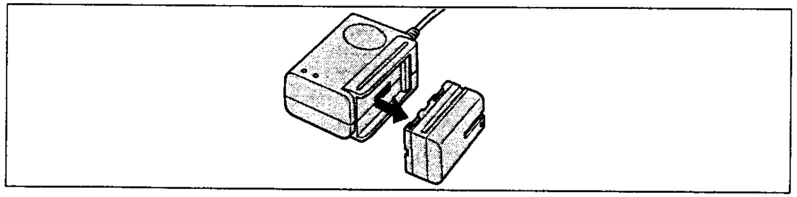
Batería	Mientras se graba**		Mientras se reproduce en la pantalla LCD ***
	LCD abierta	LCD cerrada	
NP-720 (suministrada)	60 (105)	85 (160)	115
NP-520	30 (50)	35 (65)	50
NP-500H	25 (45)	30 (60)	45

** Minutos aproximados cuando se grabe repitiendo el inicio/parada de la grabación o del zoom y la conexión/desconexión de la alimentación.La duración real de la batería puede ser más corta.
El tiempo aproximado de grabación continua en interiores se indica entre paréntesis.

*** Tiempo aproximado de reproducción continua en interiores.

Para extraer la batería

Deslice la batería en el sentido de la flecha.



See the next page for further information.

Para más información, vea la página siguiente.

SECTION 1
GENERAL

This section is extracted from instruction manual (AEP model).

Charging and Installing the Battery Pack

Notes on charging the battery pack

- The POWER lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- If the POWER lamp does not light, disconnect the mains lead. After about one minute, reconnect the mains lead again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamps will light once, then go out.

Carga e instalación de la batería

Notas sobre la carga de la batería

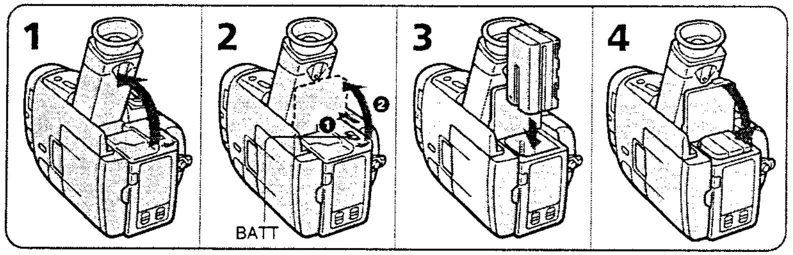
- La lámpara POWER permanecerá encendida durante un momento aunque extraiga la batería y desenchufe el cable de alimentación después de finalizada la carga. Esto es normal.
- Si la lámpara POWER no se enciende, desconecte el cable de alimentación. Después de un minuto aproximadamente, vuelva a conectar el cable.
- Usted no podrá utilizar la videocámara empleando el adaptador de CA mientras se esté cargando la batería.
- Cuando se instale una batería completamente cargada, las lámparas CHARGE se encenderán y luego se apagarán.

Installing the Battery Pack

(1) Lift up the viewfinder.
(2) While sliding the BATT lever in the direction of the arrow, open the lid of the battery compartment.
(3) Insert the battery pack in the direction of the ▼ mark on the battery pack.
(4) Close the lid.

Instalación de la batería

(1) Levante el visor.
(2) Mientras deslice la palanca BATT en el sentido de la flecha, abra la tapa del compartimiento de la batería.
(3) Inserte la batería en el sentido de la marca ▼ de la batería.
(4) Cierre la tapa.



To Remove the Battery Pack

Lift up the viewfinder and open the lid of the battery compartment. Then remove the battery pack.

Para extraer la batería

Levante el visor y abra la tapa del compartimiento de la batería. Después extraiga la batería.

Inserting a Cassette

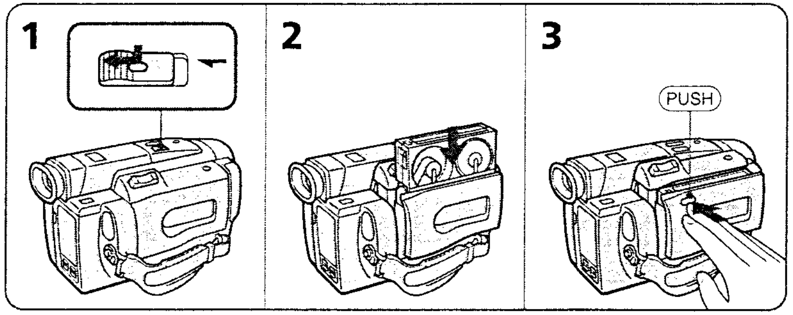
Make sure that the power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette Hi8.

(1) While pressing the small blue button on the EJECT lever, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.
(2) Insert a cassette with the window facing out.
(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

Inserción de un videocassette

Asegúrese de que haya una fuente de alimentación conectada a la videocámara. Para grabar en el sistema Hi8, utilice un videocassette Hi8.

(1) Manteniendo presionado el pequeño botón azul en la palanca EJECT, deslícela en el sentido de la flecha. El compartimiento del videocassette se elevará y abrirá automáticamente.
(2) Inserte un videocassette con la ventanilla hacia afuera.
(3) Cierre el compartimiento del videocassette presionando la marca "PUSH" en el mismo. El compartimiento del videocassette descenderá automáticamente.



To Eject the Cassette

While pressing the small blue button on the EJECT lever, slide it in the direction of the arrow.

Para expulsar el videocassette

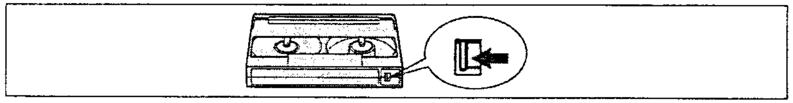
Manteniendo presionado el pequeño botón azul en la palanca EJECT, deslícela en el sentido de la flecha.

To Prevent Accidental Erasure

Slide the tab on the cassette to expose the red mark. If you try to record with the red mark exposed, the 📼 and ⏏ indicators flash in the viewfinder or on the LCD screen, and you cannot record.
To re-record on this tape, slide the tab back out covering the red mark.

Para prevenir el borrado accidental

Delice la lengüeta del videocassette de forma que la marca roja quede al descubierto. Si intenta grabar con la marca roja al descubierto, en el visor o en la pantalla LCD parpadearán los indicadores 📼 y ⏏, y no podrá grabar.
Para volver a grabar en esta cinta, deslice la lengüeta para cubrir la marca roja.



Basic Operations

Camera Recording

Operaciones básicas

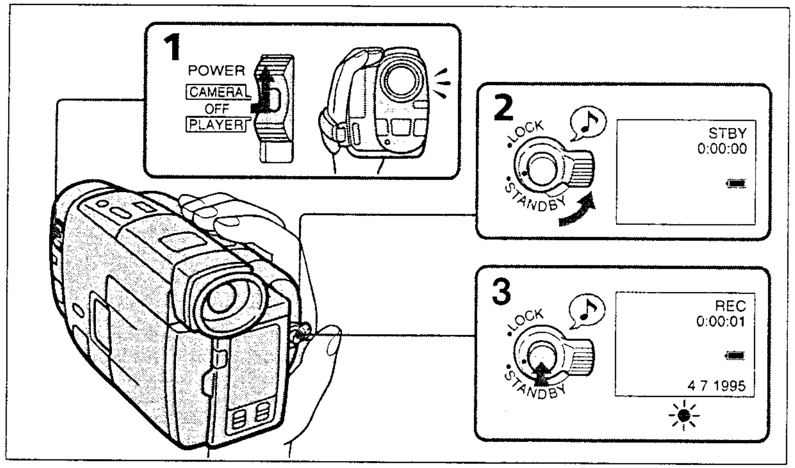
Videofilmación

Make sure that the power source is installed and a cassette is inserted.
Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
To save battery power, the picture in the viewfinder appears only when you bring your face close to the viewfinder with the STANDBY switch up **(Finder Power Save)**.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Turn STANDBY up.
(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamps located on the front and the rear of the camcorder also light up.

Asegúrese de que la fuente de alimentación esté instalada y haya un videocassette insertado.
Antes de realizar videofimaciones irrepetibles, quizá desee realizar una filmación de prueba para comprobar si la videocámara funciona correctamente.
Para ahorrar energía de la batería, en el visor aparecerá imagen sólo cuando acerque su rostro al visor con el interruptor STANDBY hacia arriba **(ahorro de energía del visor)**.

(1) Presionando el pequeño botón verde del selector POWER, deslícelo hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione START/STOP. La videocámara comenzará a grabar. En el visor aparecerá el indicador "REC" y se encenderá la lámpara roja. Las lámparas de videofilmación/estado de la batería ubicadas en la parte frontal y posterior de la videocámara se encenderán también.



To Stop Recording Momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder **(Standby mode)**.

Para detener momentáneamente la grabación [a]

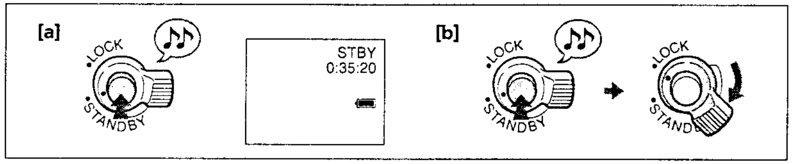
Vuelva a presionar START/STOP. En el visor aparecerá el indicador "STBY" **(modo de espera)**.

To Finish Recording [b]

Press START/STOP again. Turn STANDBY down and slide the POWER switch to OFF. The lens cover closes. Then, eject the cassette (p. 9) and remove the battery pack (p. 8).

Para finalizar la grabación [b]

Vuelva a presionar START/STOP. Gire STANDBY hacia abajo y deslice el selector POWER hasta OFF. La tapa del objetivo se cerrará. Luego, expulse el videocassette (pág. 9) y retire la batería (pág. 8).

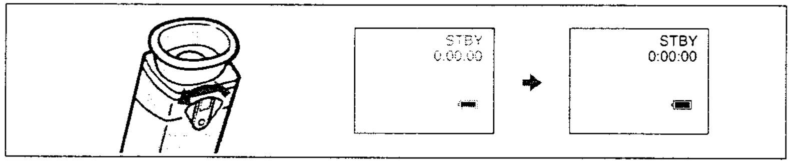


To Focus the Viewfinder Lens

If the viewfinder is not in focus at all or when you use the camcorder after someone else has used it, focus the viewfinder lens. Move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus.

Para enfocar la lente del visor

Si el visor no está enfocado en absoluto, o cuando emplee la videocámara después de que otra persona la haya utilizado, enfoque la lente del visor. Mueva la palanca de ajuste de la lente del visor para que los indicadores del visor puedan verse claramente.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down once and turn it up again. To start recording, press START/STOP.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.
You can record tapes in SP (standard play) mode only.

Nota sobre el modo de espera

Si deja la videocámara en el modo de espera durante 5 o más minutos con el videocassette insertado, la videocámara se apagará automáticamente. Esto evita que la batería se descargue y el videocassette se desgaste. Para reanudar el modo de espera, gire una vez STANDBY hacia abajo y después vuelva a girarlo hacia arriba. Para comenzar a grabar, presione START/STOP.

Nota sobre la grabación

Cuando grabe desde el principio de la cinta, haga que ésta avance unos 15 segundos antes de comenzar a videofilmar. Esto evitará que se pierdan las escenas iniciales cuando reproduzca la cinta.
Con esta videocámara solamente podrá grabar las cintas en el modo SP (duración normal).

See the next page for further information.

Para más información, vea la página siguiente.

Note on the tape counter

The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.

Note on BEEP sound

As indicated by the ♪ mark in the illustrations, a beep sounds when you turn the power on or when you start recording and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder (p. 89). Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system (p. 30).

Notes on finder power save

- The recording continues even when the picture in the viewfinder disappears during recording.
- If you set the FINDER POWER SAVE switch to OFF, the picture in the viewfinder does not disappear even when you turn your face away from the viewfinder.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene.
For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

Nota sobre el contador de la cinta

El contador de la cinta indica el tiempo de grabación o reproducción. Empléelo como guía. Habrá un retardo de varios segundos con relación al tiempo real. Para poner el contador a cero, presione COUNTER RESET.

Nota sobre los pitidos BEEP

Como se indica mediante la marca ♪ en las ilustraciones, cuando conecte la alimentación o comience a grabar sonará un pitido, y cuando detenga la grabación sonarán dos pitidos, confirmando así la operación. También sonarán varios pitidos como aviso de que se ha producido alguna condición extraña en la videocámara (pág. 89).
Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea escuchar los pitidos, seleccione "OFF" en el sistema de menú (pág. 30).

Notas sobre el ahorro de energía del visor

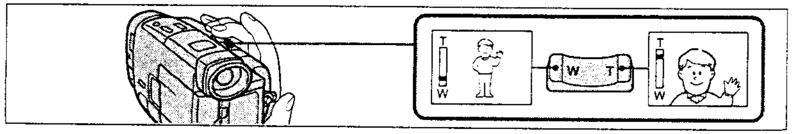
- La grabación continuará aun que desaparezca la imagen del visor durante la grabación.
- Si pone el conmutador FINDER POWER SAVE en OFF, la imagen no desaparecerá del visor aunque aleje su rostro del visor.

Cuando se traslade de interiores a exteriores (o viceversa)

Gire STANDBY hacia arriba y dirija la videocámara hacia un objeto blanco durante unos 15 segundos para que se ajuste correctamente el equilibrio del blanco.

Empleo del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena.
Para que sus grabaciones tengan una apariencia más profesional, no utilice el zoom en exceso.
Lado "T": para telefoto (el motivo aparece más próximo)
Lado "W": para gran angular (el motivo aparece más alejado)



Zooming Speed

Press the power zoom button firmly for a high-speed zoom; press it softly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, press the "W" side of the power zoom button until the focus is sharp. You can shoot a subject that is at least about 90 cm (3 feet) away from the lens surface in the telephoto position, or about 1 cm (1/2 inches) in the wide-angle position.

Notes on Digital Zoom

- More than 10 x zoom is performed digitally, and the picture quality deteriorates as you go toward the T side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system (p. 30).
- The horizontal bar in the power zoom indicator separates the digital zooming zone (above the bar **[a]**) and the optical zooming zone (under the bar **[b]**). If you set the D ZOOM function to OFF, the part above the bar disappears.

Velocidad del zoom

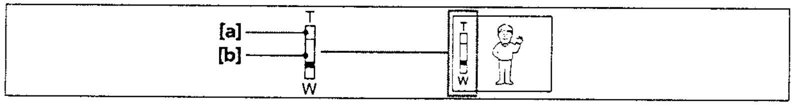
Presione firmemente la tecla del zoom motorizado para efectuar el zoom a gran velocidad y presiónelo suavemente para hacerlo a una velocidad relativamente lenta.

Cuando videofilme un motivo empleando el acercamiento con el zoom

Si no puede enfocar nítidamente empleando el ajuste del zoom en el extremo de telefoto, presione el lado "W" de la tecla del zoom motorizado hasta que el motivo se enfoque nítidamente. En la posición de telefoto, podrá videofilmar un motivo que se encuentre a un mínimo de 90 cm de la superficie del objetivo, y a 1 cm aproximadamente en la posición de gran angular.

Notas sobre el zoom digital

- El zoom de más de 10x se realizará digitalmente, y la calidad de la imagen se deteriorará al avanzar hacia el lado T. Si no desea emplear el zoom digital, ajuste la función D ZOOM a OFF en el sistema de menú (pág. 30).
- La barra horizontal del indicador del zoom motorizado separa la zona del zoom digital (encima de la barra **[a]**) y la del zoom óptico (debajo de la barra **[b]**). Si ajusta la función D ZOOM a OFF, la parte ubicada encima de la barra desaparecerá.



Shooting with the LCD Screen

You can also record the picture while looking at the LCD screen.
When using the LCD screen, the viewfinder screen turns off automatically. You cannot monitor the sound from the speaker during recording.

(1) While pressing PUSH OPEN, open the LCD panel.

(2) Adjust the angle of the LCD panel.
The LCD panel moves about 90 degrees to this side and about 180 degrees to the other side.
To adjust the brightness of the LCD screen, press BRIGHT.
+ side: to brighten the LCD screen
– side: to dim the LCD screen

The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.

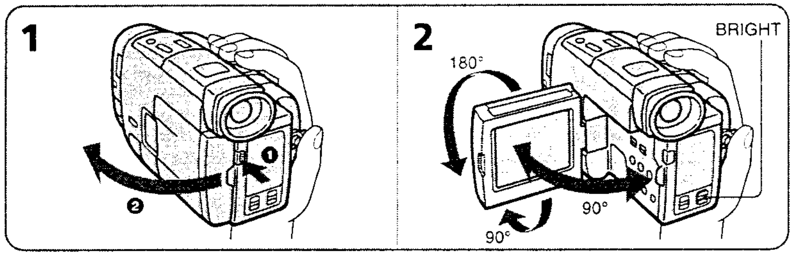
Videofilmación con la pantalla LCD

Usted también podrá videofilmar observando la imagen en la pantalla de cristal líquido.
Cuando utilice la pantalla LCD, la pantalla del visor se apagará automáticamente. El sonido no podrá oírse a través del altavoz durante la grabación.

(1) Manteniendo presionado PUSH OPEN, abra el panel LCD.

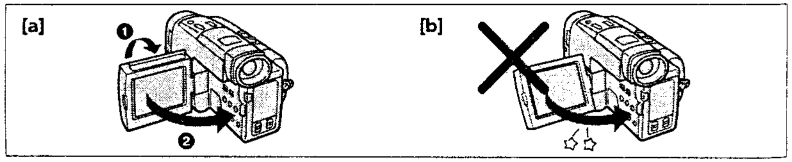
(2) Ajuste el ángulo del panel LCD.
El panel LCD puede moverse unos 90 grados hacia este lado y unos 180 grados hacia el otro lado.
Para ajustar el brillo de la pantalla LCD, presione BRIGHT.
Lado +: para aumentar el brillo de la pantalla
Lado –: para reducir el brillo de la pantalla

La duración de la batería se prolongará si utiliza la videocámara con el panel LCD cerrado. Utilice el visor en lugar de la pantalla LCD para ahorrar energía de la batería.



Notes on the LCD panel
- When closing the LCD panel, turn it vertically until it clicks **[a]**.
- When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly **[b]**.
- Close the LCD panel completely when not in use.

Notas sobre el panel LCD
- Cuando cierre el panel LCD, gírelo verticalmente hasta que chasquee **[a]**.
- Cuando gire el panel LCD, gírelo siempre verticalmente;de lo contrario, es posible que la videocámara se dañe o el panel LCD no pueda cerrarse adecuadamente **[b]**.
- Cierre completamente el panel LCD cuando no lo utilice.

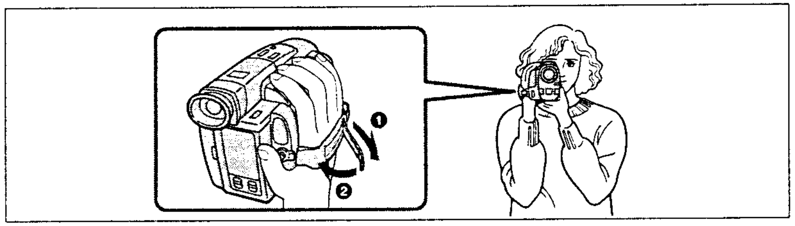


Hints for Better Shooting

Sugerencias para videofilmar mejor

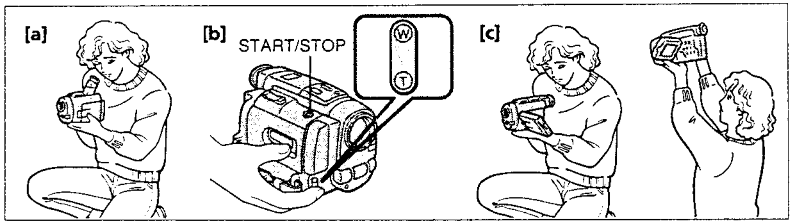
For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:
- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb.

Cuando videofilme con la videocámara en las manos, obtendrá mejores resultados sujetándola según las siguientes sugerencias:
- Sujete firmemente la videocámara y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar.



- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can record in a low position to get an interesting recording angle. Lift the viewfinder up for recording from a low position **[a]**.
- While recording in a low position, you can use the START/STOP button on the top of the camcorder or the power zoom button located on the front **[b]**. Note that you cannot change zooming speed using the front power zoom button.
- You can also record in a low position or even in a high position using the LCD panel **[c]**.

- Ponga su codo derecho contra su costado.
- Ponga su mano izquierda debajo de la videocámara para sostenerla.
- Apoye el ocular del visor firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como guía.
- Podrá grabar desde una posición baja para obtener un ángulo de videofilmación interesante. Levante el visor para grabar desde una posición baja **[a]**.
- Cuando grabe desde una posición baja, podrá utilizar la tecla START/STOP ubicada en la parte superior de la videocámara o la tecla del zoom motorizado de la parte frontal **[b]**. Tenga en consideración que la velocidad del zoom no podrá cambiarse con la tecla del zoom motorizado frontal.
- Usted también podrá grabar desde una posición baja o incluso desde una posición alta empleando el panel LCD **[c]**.



See the next page for further information.

Para más información, vea la página siguiente.

Hints for Better Shooting

Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p. 81). When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm (9/32 in). Otherwise, the screw may damage the inner parts of the camcorder.

Cautions on the viewfinder and the LCD

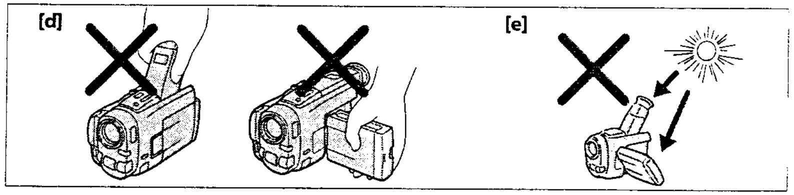
- Do not pick up the camcorder by the viewfinder or by the LCD panel **[d]**.
- Do not place the camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or the LCD panel may be deformed. Be careful when placing the camcorder under sunlight or by the window **[e]**.

Sugerencias para videofilmar mejor

Coloque la videocámara sobre una superficie plana o utilice un trípode
Pruebe colocando la videocámara sobre una mesa o cualquier otra superficie plana que tenga una altura apropiada. Si posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara (pág. 81). Cuando emplee un trípode que no sea de Sony, asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5 mm. De lo contrario, el tornillo podría dañar las partes interiores de la videocámara.

Precauciones con el visor y la pantalla LCD

- No sujete la videocámara por el visor ni por el panel LCD **[d]**.
- No coloque la videocámara de forma que el visor o la pantalla LCD quede hacia el sol. El interior del visor o el panel LCD podría deformarse. Tenga cuidado cuando deje la videocámara bajo el sol o cerca de una ventana **[e]**.



Checking the Recorded Picture

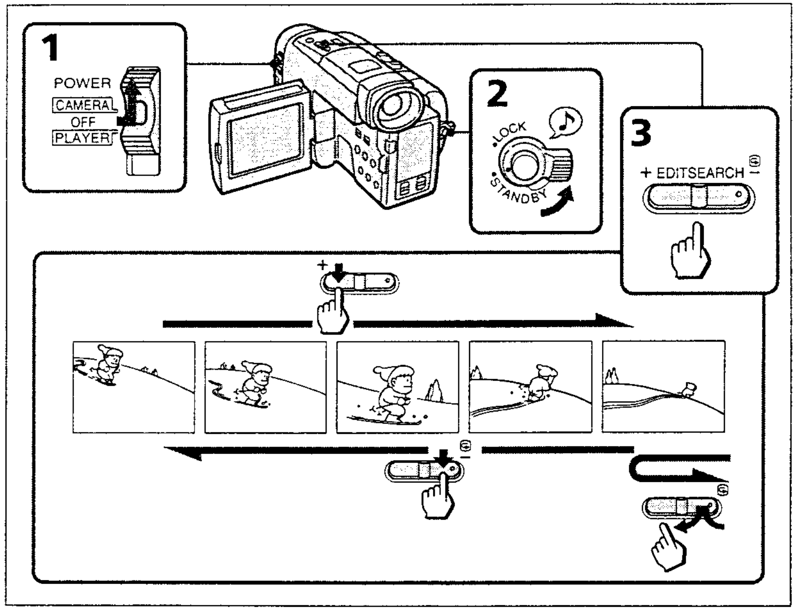
Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder. You can also review the picture on the LCD screen.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Turn STANDBY up.
(3) Press the - (⊜) side of EDITSEARCH momentarily; the last few seconds of the recorded portion plays back **(Rec Review)**.
You can also monitor the sound from the speaker or by using headphones (not supplied).
Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Edit Search)**.

Comprobación de la imagen grabada

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar la imagen grabada en el visor. También podrá revisar la imagen en la pantalla LCD.

(1) Mientras presione el pequeño botón verde del selector POWER, deslíclo hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione momentáneamente el lado - (⊜) de EDITSEARCH y se reproducirán los últimos segundos de la parte grabada **(revisión de la grabación)**. También podrá comprobar el sonido a través de altavoz o empleando unos auriculares (no suministrados).
Mantenga presionado el lado – de EDITSEARCH hasta que la videocámara retroceda hasta la escena que usted desee. La última parte grabada se reproducirá. Para avanzar, mantenga presionado el lado + **(búsqueda de edición)**.



See the next page for further information.

Para más información, vea la página siguiente.

Checking the Recorded Picture

Comprobación de la imagen grabada

To Stop Playback
Release EDITSEARCH.

To Go Back to the Last Recorded Point After Edit Search
Press END SEARCH. The last recorded point is played back for about 5 seconds and stops.

To Begin Re-recording
Press START/STOP. Re-recording begins from the last recorded point or the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

Para cesar la reproducción
Suelte EDITSEARCH.

Para retroceder hasta el punto grabado en último lugar después de la búsqueda de edición
Presione END SEARCH. El punto grabado en último lugar se reproducirá durante unos 5 segundos y se detendrá.

Para reanudar la grabación
Presione START/STOP. La grabación se iniciará desde el punto grabado en último lugar o donde dejó de presionar EDITSEARCH. Siempre que no extraiga el videocassette, la transición entre la última escena grabada y la siguiente se realizará suavemente.

Playing Back a Tape

Reproducción de una cinta

You can monitor the playback picture on the LCD screen.
You can also play back using the supplied HSA-V515 Handycam Station (p. 26).

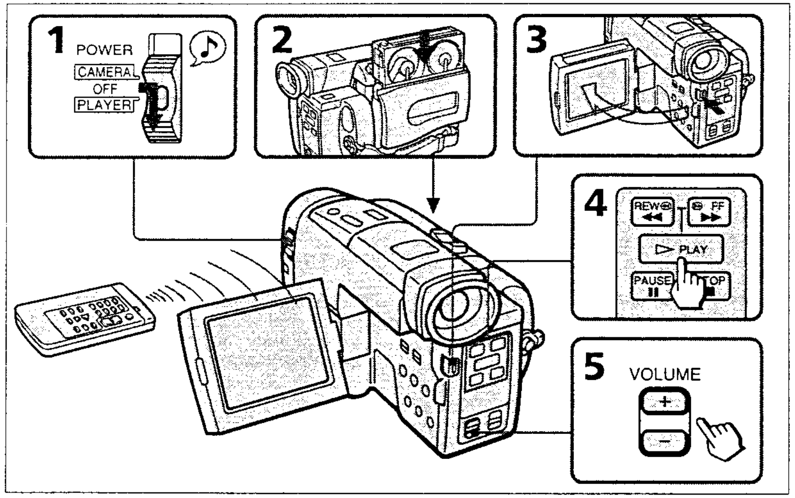
(1) While pressing the small green button on the POWER switch, slide it to PLAYER. The tape transport buttons light up.
(2) Insert the recorded tape with the window facing out.
(3) While pressing PUSH OPEN, open the LCD panel. Adjust the angle of the LCD panel or the brightness of the LCD screen if necessary (p. 14).
(4) Press ▷ to start playback.
(5) Adjust the volume using VOLUME.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR (p. 45).

Usted podrá ver las imágenes de reproducción en la pantalla LCD.
También podrá reproducirlas empleando el interconectador HSA-V515 suministrado (pág. 26).

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta PLAYER. Las teclas de transporte de la cinta se iluminarán.
(2) Inserte la cinta grabada con la ventanilla hacia afuera.
(3) Manteniendo presionado PUSH OPEN, abra el panel LCD. Ajuste el ángulo del panel o el brillo de la pantalla de LCD si es necesario (pág. 14).
(4) Presione ▷ para iniciar la reproducción.
(5) Ajuste el volumen con VOLUME.

Usted también podrá ver la imagen en la pantalla de un televisor si conecta la videocámara a un televisor o una videograbadora (pág. 45).



To stop playback, press □.
To rewind the tape, press ◀◀.
To advance the tape rapidly, press ▶▶.

Para parar la reproducción, presione □.
Para rebobinar la cinta, presione ◀◀.
Para hacer que la cinta avance rápidamente, presione ▶▶.

See the next page for further information.

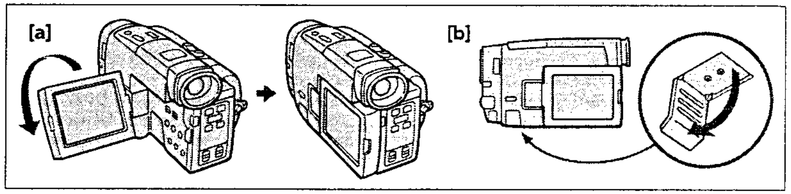
Para más información, vea la página siguiente.

When Monitoring on the LCD Screen

You can turn the LCD panel over and move back to the camcorder with the LCD screen facing out **[a]**. You can adjust the angle of the LCD screen by lifting up the stand on the bottom of the camcorder **[b]**.

Imagen en la pantalla LCD

Usted podrá girar el panel LCD hacia el otro lado y reponerlo en su lugar original con la pantalla LCD hacia afuera **[a]**. También podrá ajustar el ángulo de la pantalla LCD levantando el pié situado en la base de la videocámara **[b]**.



Using the Remote Commander

You can control playback using the supplied Remote Commander.
Before using the Remote Commander, insert the R6 (size AA) batteries and slide the HOLD switch in the opposite direction to the arrow.

Note on DISPLAY button
Press DISPLAY to display the screen indicators on the LCD screen. To erase the indicators, press again.
The indicators don't appear on the TV.

Using headphones
Connect headphones (not supplied) to the ∩ jack. You can adjust the volume of the headphones using VOLUME.

To view the playback picture in the viewfinder
Close the LCD panel. The viewfinder turns on automatically. When using the viewfinder, you can monitor the sound only by using headphones.
To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Various Playback Modes

You can enjoy noiseless pictures on the LCD screen during still, slow and picture search. **(Crystal-clear still/slow/picture search)**

Utilización del telemando

Usted podrá controlar la reproducción empleando el telemando suministrado.
Antes de utilizar el telemando, inserte las pilas R6 (tamaño AA) y deslice el interruptor HOLD en el sentido opuesto a la flecha.

Nota sobre la tecla DISPLAY
Presione DISPLAY para visualizar los indicadores en la pantalla LCD. Para borrarlos, presione otra vez la tecla.
Los indicadores no aparecerán en el televisor.

Empleo de auriculares
Conecte unos auriculares (no suministrados) a la toma ∩. Usted podrá ajustar el volumen de los auriculares con VOLUME.

Para ver la imagen de reproducción en el visor
Cierre el panel LCD. El visor se encenderá automáticamente. Cuando emplee el visor, sólo podrá comprobar el sonido empleando unos auriculares.
Para ver otra vez la imagen en la pantalla LCD, abra el panel LCD. El visor se apagará automáticamente.

Diversos modos de reproducción

Usted podrá ver imágenes sin ruido en la pantalla LCD durante la imagen fija, a cámara lenta y la búsqueda de imagen. **(Imagen fija clara a cámara lenta/búsqueda de imagen)**

1-8

To View a Still Picture (Playback pause)

Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To Locate a Scene (Picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To Monitor the High-speed Picture while Advancing the Tape or Rewinding (Skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To View the Picture in a Sequence of Stop-motion Images

Press EDITSEARCH in playback pause mode. If you keep pressing EDITSEARCH, you can view the picture play back in the forward (+) or reverse (–) direction.

To View the Picture at 1/5 Speed (Slow playback)

Press ❚▶ on the Remote Commander during playback. To resume normal playback, press ▶. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To View the Picture at Double Speed

For double speed playback in the reverse direction, press </◀❚❚, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >/❚❚▶, then press x2 during playback. To resume normal playback, press ▶.

To View the Picture Frame-by-Frame

Press </◀❚❚ or >/❚❚▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▶.

See the next page for further information.

Para ver una imagen fija (reproducción en pausa)

Presione ❚❚ durante la reproducción. Para reanudarla, presione ❚❚ o ▷.

Para localizar una escena (búsqueda de imagen)

Mantenga presionada ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a alta velocidad durante el avance rápido o el rebobinado de la cinta (exploración con salto)

Mantenga presionada ◀◀ durante el rebobinado o ▶▶ durante el avance de la cinta. Para reanudar la reproducción normal, presione ▷.

Para ver la imagen en una secuencia de imágenes fijas

Presione EDITSEARCH en el modo de reproducción en pausa. Si la mantiene presionada, podrá ver las imágenes en sentido progresivo (+) o regresivo (–).

Para ver la imagen a 1/5 de la velocidad normal (reproducción a cámara lenta)

Presione ❚▶ del telemando durante la reproducción. Para reanudar la reproducción normal, pulse ▶. Si la reproducción a cámara lenta dura 1 minuto aproximadamente, ésta cambiará automáticamente a la velocidad de reproducción normal.

Para ver la imagen al doble de la velocidad normal

Para reproducir a velocidad doble en sentido regresivo, presione </◀❚❚, y después pulse x2 en el telemando durante la reproducción. Para reproducir a velocidad doble en sentido progresivo, presione >/❚❚▶, y después pulse x2 durante la reproducción. Para reanudar la reproducción a velocidad normal, presione ▶.

Para ver la imagen fotograma por fotograma

Presione </◀❚❚ o >/❚❚▶ del telemando en el modo de reproducción en pausa. Si mantiene presionada la tecla, podrá ver la imagen a 1/25 de la velocidad normal.
Para reanudar la reproducción a velocidad normal, presione ▶.

Para más información, vea la página siguiente.

To Change the Playback Direction

Press </◀II on the Remote Commander for reverse direction or >/II▶ on the Remote Commander for forward direction during playback. To resume normal playback, press ▶.

To Select the Playback Sound

Change the "HiFi SND" mode setting in the menu system (p. 31).

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the centre of the screen when you play back a tape in reverse if the RC time code or the Data code is displayed on the screen. This is normal.

Displaying the Date or Time When You Recorded - Data Code Function

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and on the LCD screen.

To Display the Date When You Recorded

Press DATE on the camcorder, or press DATA CODE on the Remote Commander.
To make the date disappear, press DATE again or DATA CODE twice.

Para cambiar el sentido de reproducción

Presione</◀II del telemando para reproducir en sentido regresivo o >/II▶ para reproducir en sentido progresivo durante la reproducción. Para reanudar la reproducción normal, presione ▶.

Para seleccionar el sonido de reproducción

Cambie el ajuste del modo "HiFi SND" en el sistema de menú (pág. 31).

Notas sobre la reproducción

- En los diversos modos de reproducción aparecerán rayas y el sonido se silenciará.
- Cuando el modo de imagen fija dure más de 5 minutos, la videocámara se detendrá automáticamente.
- Si reproduce una cinta en sentido regresivo con el código de tiempo RC o el código de datos visualizado en la pantalla, aparecerá ruido horizontal en el centro de la pantalla. Esto es normal.

Visualización de la fecha o la hora de la grabación - Función de código de datos

Aunque no haya grabado la fecha o la hora durante la videofilmación, podrá visualizarla después (código de datos) en el televisor durante la reproducción o la edición. El código de datos podrá visualizarse también en el visor y en la pantalla LCD.

Para visualizar la fecha de la grabación

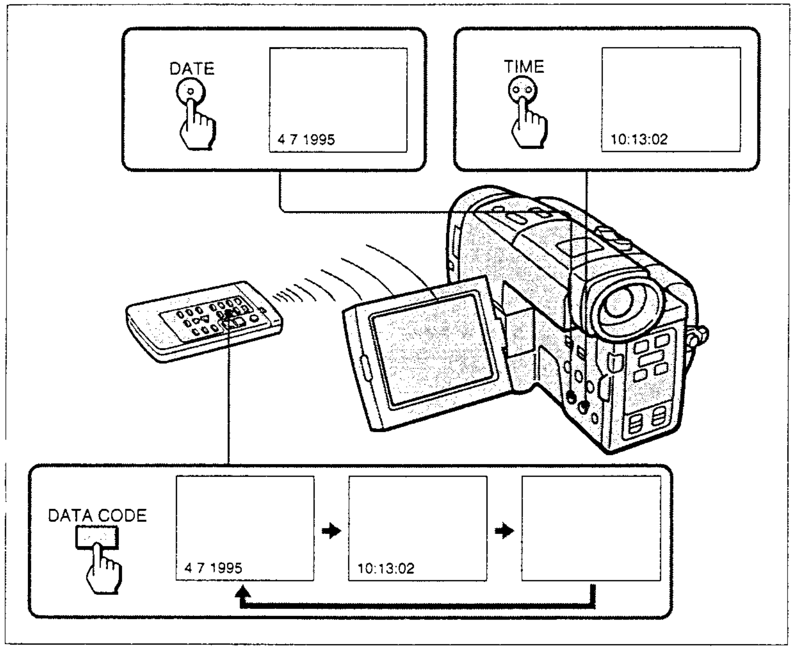
Presione DATE de la videocámara o DATA CODE del telemando.
Para hacer que desaparezca la fecha, presione nuevamente DATE o dos veces DATA CODE.

To Display the Time When You Recorded

Press TIME on the camcorder, or press DATA CODE on the Remote Commander twice. To make the time disappear, press it again.

Para visualizar la hora de la grabación

Presione TIME de la videocámara o presione dos veces DATA CODE del telemando.
Para hacer que desaparezca la hora, vuelva a presionarla.



When bars (--:--:--) appear

- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.

Las barras (--:--:--) aparecerán cuando

- reproduzca una parte en blanco de la cinta.
- la cinta se haya grabado con una videocámara que no posea función de código de datos.
- la cinta se haya grabado sin haber ajustado la fecha ni la hora en la videocámara.
- sea difícil de leer la cinta debido al daño o ruido en la misma.

Searching for the End of the Picture

Búsqueda del final de la imagen

You can go to the end of the recorded portion after you record and play back the tape to make the transition between the last scene you recorded and the next scene smooth. The tape starts rewinding or fast-forwarding and the last 5 seconds of the recorded portion plays back. Then the tape stops at the end of the recorded picture **(End Search)**.
Note that End Search function does not work once you eject the cassette after you recorded in the tape.

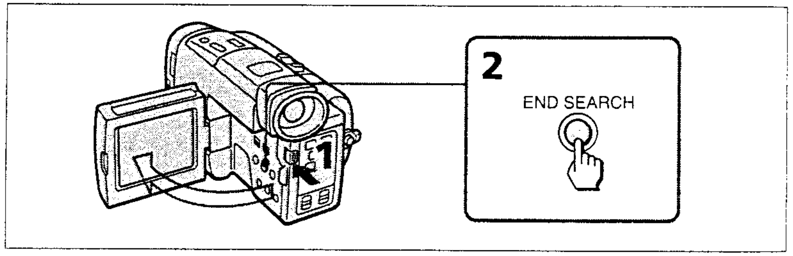
(1) While pressing PUSH OPEN, open the LCD panel.
(2) Press END SEARCH.

This function works when the POWER switch is set to either CAMERA or PLAYER.

Es posible ir al final de la parte grabada después de la grabación y reproducir la cinta para que la transición entre la última escena grabada y la siguiente se realice suavemente. La cinta se rebobinará o avanzará rápidamente y se reproducirán los 5 últimos segundos de la parte grabada. Luego la cinta se detendrá al final de la imagen grabada **(Búsqueda del final)**.
Tenga en cuenta que la función de búsqueda del final no podrá activarse una vez que haya expulsado el videocassette después de haber grabado la cinta.

(1) Manteniendo presionado PUSH OPEN, abra el panel LCD.
(2) Presione END SEARCH.

Esta función podrá activarse cuando el selector POWER esté ajustado tanto en la posición CAMERA como en PLAYER.



Using Alternative Power Sources

Utilización con fuentes de alimentación alternativas

You can choose any of the following power sources for your camcorder: battery pack (p.6), the mains, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	The mains	AC power adaptor AC-V515 (supplied)
		Handycam Station HSA-V515 (supplied) (cannot be used for camera recording)
Outdoor	Battery pack	Battery pack NP-720 (supplied), NP-520, NP-500H
In the car	12 V or 24 V car battery	Car battery charger DC-V515

Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Usted podrá elegir cualquiera de las siguientes fuentes para alimentar la videocámara: batería (pág. 6), corriente de la red, y batería del automóvil de 12/24 V. Elija la fuente adecuada según el lugar donde desee emplear la videocámara.

Lugar	Fuente de alimentación	Accerorio necesario
Interiores	Corriente de la red	Adaptador de CA AC-V515 (suministrado)
		Interconectador HSA-V515 (suministrado) (no puede emplearse para videofilmar)
Exteriores	Batería	Batería NP-720 (suministrada), NP-520, NP-500H
En un automóvil	Batería de 12 o 24 V	Cargador de batería DC-V515

Nota sobre las fuentes de alimentación

Si desconecta la fuente de alimentación o quita la batería durante la videofilmación o la reproducción, es posible que se dañe la cinta insertada. En tal caso, vuelva a restablecer inmediatamente la alimentación.

Using the Mains

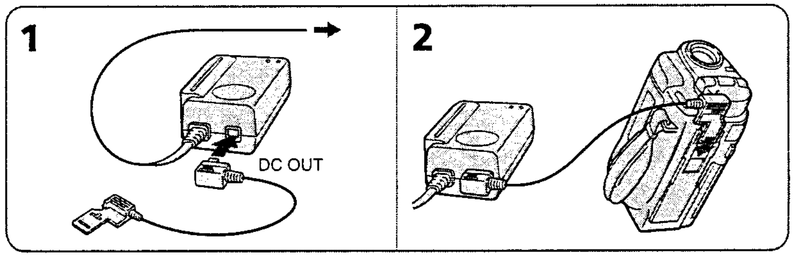
Use the supplied AC-V515 AC power adaptor.

(1) Connect the mains lead to mains, then connect the connecting cord to the DC OUT jack on the AC power adaptor.
(2) Insert the connecting plate into the guide at the bottom of the camcorder.

Utilización con corriente de la red

Emplee el adaptador de CA AC-V515 suministrado.

(1) Conecte el cable de alimentación a una toma de la red y luego conecte el cable conector a la toma DC OUT del adaptador de CA.
(2) Inserte la placa conectora en la guía de la base de la videocámara.



See the next page for further information.

Para más información, vea la página siguiente.

Using Alternative Power Sources

Utilización con fuentes de alimentación alternativas

You can charge the battery pack installed in the camcorder by connecting the AC power adaptor to the camcorder and setting the POWER switch to OFF. Charging time of the supplied NP-720 battery pack is approx. 3 hours and 50 minutes.

To remove the connecting plate
Pull out the connecting plate by the plate. Never pull the connecting cord itself.

WARNING
Mains lead must only be changed at qualified service shop.

PRECAUTION
The set is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the set itself has beep turned off.

Using the Handycam Station

By using the supplied HSA-V515 Handycam Station, you can easily operate the camcorder when playing a recorded tape (p.19).

(1) Connect the mains lead of the supplied AC power adaptor to mains.
(2) Connect the supplied connecting cord to the DC OUT jack on the AC power adaptor.
(3) Insert the connecting plate into the guide at the bottom of the Handycam Station.
(4) Set the POWER switch of the camcorder to OFF.
(5) Aligning the bottom of the camcorder with the arrow mark on the Handycam Station, slide the camcorder along the guide until it clicks.
(6) Set the POWER switch of the camcorder to PLAYER.

Si conecta el adaptador de CA a la videocámara y pone el selector POWER en OFF, usted podrá cargar la batería colocada en la videocámara. El tiempo de carga de la batería NP-720 suministrada es de unas 3 horas y 50 minutos.

Para quitar la placa conectora
Tire de la propia placa conectora. No tire del cable de la misma.

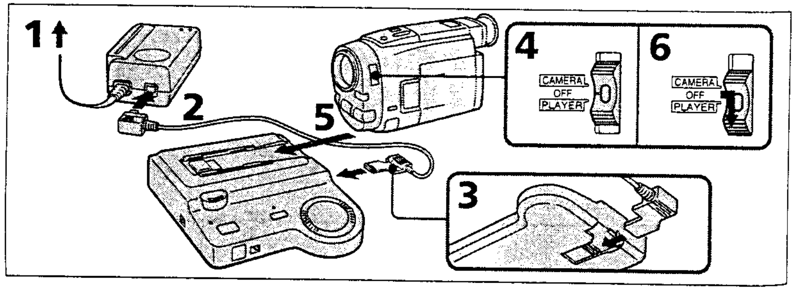
AVISO
El cable de alimentación deberá cambiarse solamente en un centro de servicios cualificado.

PRECAUCIÓN
Esta unidad no se desconectará de la fuente de CA (red) mientras el cable esté conectado a una toma de la red, aunque haya desconectado la alimentación de la misma.

Utilización del interconectador

Empleando el interconectador HSA-V515 suministrado, podrá operar fácilmente la videocámara cuando reproduzca una cinta grabada (pág. 19).

(1) Conecte el cable de alimentación del adaptador de CA suministrado a una toma de la red.
(2) Conecte el cable conector suministrado a la toma DC OUT del adaptador de CA.
(3) Inserte la placa conectora en la guía de la base del interconectador.
(4) Ponga el selector POWER de la videocámara en OFF.
(5) Alinee la base de la videocámara con la marca de flecha en el interconectador y deslice la videocámara a lo largo de la guía hasta que chasquee.
(6) Ponga el selector POWER de la videocámara en PLAYER.



You can charge the battery pack installed in the camcorder by connecting the AC power adaptor to the Handycam Station and setting the HANDYCAM POWER switch to OFF. Charging time of the supplied NP-720 battery pack is approx. 3 hours and 50 minutes.

To Play Back with the Handycam Station

Before operating the camcorder, make sure the POWER switch of the camcorder is set to PLAYER.

(1) Press HANDYCAM POWER to turn the HANDYCAM POWER lamp on the Handycam Station into green.
(2) Press ▷ to start playback.

Use the buttons and the shuttle ring on the Handycam Station to control playback. To use the shuttle ring, turn the ring clockwise or counterclockwise to point the desired indication around the ring.

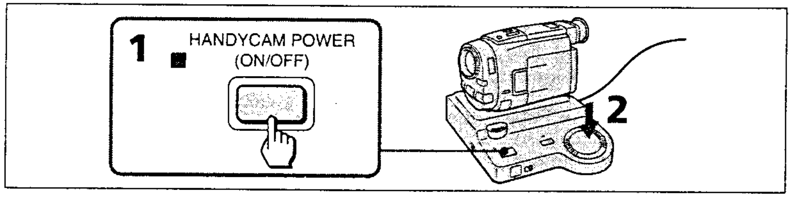
Si conecta el adaptador de CA al interconectador y pone HANDYCAM POWER en OFF, usted podrá cargar la batería colocada en la videocámara. El tiempo de carga de la batería NP-720 suministrada es de unas 3 horas y 50 minutos.

Reproducción con el interconectador

Antes de hacer funcionar la videocámara, asegúrese de que el selector POWER de la misma esté en PLAYER.

(1) Presione HANDYCAM POWER para encender la lámpara HANDYCAM POWER del interconectador en verde.
(2) Presione ▷ para iniciar la reproducción.

Utilice las teclas y el anillo de lanzadera del interconectador para controlar la reproducción. Para utilizar el anillo de lanzadera, gire el anillo hacia la derecha o izquierda apuntando hacia la indicación deseada alrededor del anillo.



Caution
Do not set the POWER switch to CAMERA. The Handycam Station can be used only for PLAYER mode.

Note on the COMMAND MODE selector
When using the Remote Commander with the Handycam Station, set COMMAND MODE to VTR 2.

Cuidado
No ponga el selector POWER en CAMERA. El interconectador podrá utilizarse sólamente en el modo PLAYER.

Nota sobre el selector COMMAND MODE
Cuando utilice el telemando con el interconectador, ponga COMMAND MODE en VTR 2.

See the next page for further information.

Para más información, vea la página siguiente.

Using Alternative Power Sources

Utilización con fuentes de alimentación alternativas

To remove the camcorder

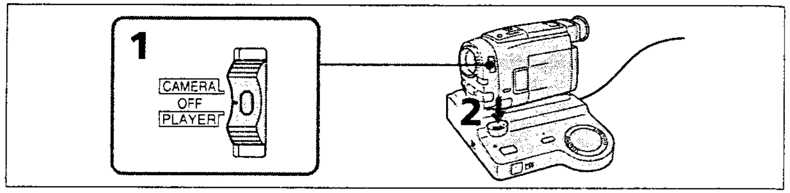
(1) Set the POWER switch of the camcorder to OFF.

(2) Press RELEASE on the Handycam Station.

Para quitar la videocámara

(1) Ponga el selector POWER de la videocámara en OFF.

(2) Presione RELEASE del interconectador.



Using a Car Battery

Use the DC-V515 car battery charger (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V). Connect the car battery charger and the camcorder using the supplied connecting cord.

This mark indicates that this product is a genuine product related to our 8mm video equipment. When purchasing our 8mm video equipment, we recommend that you purchase related 8mm video products provided with the same mark or products provided with our logotype mark.

Utilización con la batería de un automóvil

Emplee un cargador de batería de automóvil DC-V515 (no suministrado). Conecte el cable de batería de automóvil a la toma del encendedor de cigarrillos del automóvil (12 o 24 V). Conecte el cargador de batería y la videocámara empleando el cable conector suministrado.

Esta marca indica que este producto es genuino y está relacionado con nuestros equipos de vídeo de 8 mm. A la hora de adquirir equipos de vídeo de 8 mm, se recomienda elegir los productos de vídeo de 8 mm relacionados con la misma marca o los que tengan nuestro logotipo.

Changing the Mode Settings

Cambio de los ajustes de modo

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder. Once you select desired modes, the settings are retained even when the battery is removed, as long as the lithium battery is in place.

(1) Open the AUTO LOCK/MENU cover to display the menu.

(2) When the camcorder is in standby mode, turn the menu dial to select MENU, then press the dial.

(3) Turn the menu dial to select the desired item, then press the dial.

(4) Turn the menu dial to select the desired mode, then press the dial. If you want to change the other modes, repeat steps 3 and 4.

(5) Close the AUTO LOCK/MENU cover to erase the menu display.

Usted podrá cambiar los ajustes de modo en el sistema de menú para disfrutar más de las características y funciones de la videocámara. Una vez que haya seleccionado los modos deseados, los ajustes se mantendrán aunque extraiga la batería, mientras la pila de litio esté en su lugar.

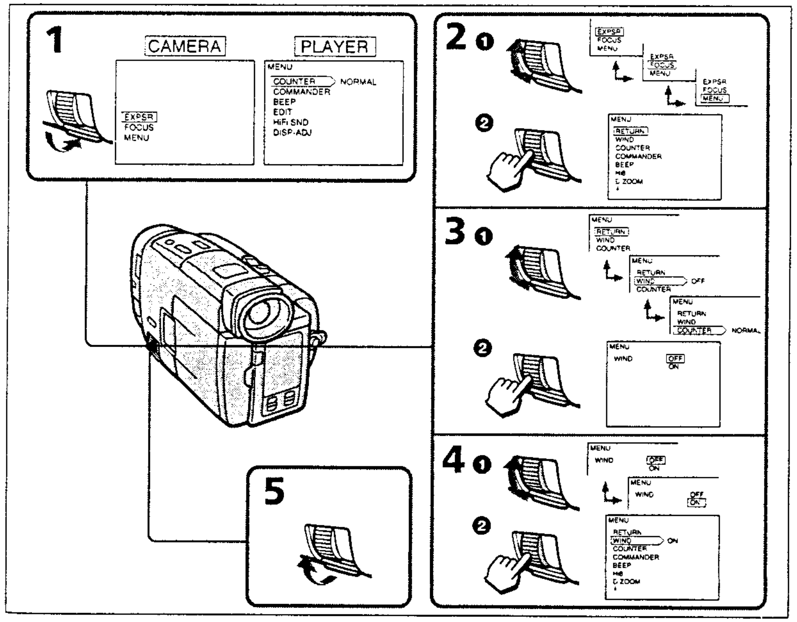
(1) Abra la cubierta AUTO LOCK/MENU para visualizar el menú.

(2) Cuando la videocámara esté en el modo de espera, gire el dial de menú para seleccionar MENU, y luego presione el dial.

(3) Gire el dial de menú para seleccionar el ítem deseado, después presione el dial.

(4) Gire el dial de menú para seleccionar el modo deseado, después presione el dial. Si desea cambiar los otros modos, repita los pasos 3 y 4.

(5) Cierre la cubierta AUTO LOCK/MENU para borrar la visualización del menú.



See the next page for further information.

Para más información, vea la página siguiente.

Changing the Mode Settings

Selecting the Mode Setting of Each Item

Items for both CAMERA and PLAYER Modes

COUNTER <NORMAL/TIME CODE>

- Select NORMAL to use the normal tape counter.
- Select TIME CODE to use the RC Time Code (p.54) as the tape counter.

COMMANDER <ON/OFF>

- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

BEEP <ON/OFF>

- Select ON to hear a beep sound when starting or stopping recording, confirming the operation.
- Select OFF when you do not want to hear the beep sound.

DISP.ADJ

Select this item and change the level of the indicator by turning the menu dial to adjust the colour intensity of the picture when using the LCD.

Items for CAMERA Mode only

WIND <ON/OFF>

- Select ON to reduce wind noise when recording.
- Normally select OFF.

Hi8 < AUTO/OFF>

- Normally select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8 mm) depending upon cassette type being used.
- Select OFF to record a Hi8 tape in standard 8 mm format. See page 61 for details about cassette types.

D ZOOM <ON/OFF>

- Select ON to activate digital zooming.
- Select OFF not to use the digital zoom. The camcorder goes back to 10x zoom.

REC LAMP <ON/OFF>

- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.
- Normally select ON.

CLOCK SET

Select this item to reset the date or time.

Items for PLAYER Mode only

EDIT <ON/OFF>

- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SND <STEREO/1/2>

- Normally select STEREO.
- Select 1 or 2 to play back a dual soundtrack tape.

Cambio de los ajustes de modo

Selección de los ajustes de modo en cada ítem

Ítemes para los modos CAMERA y PLAYER

COUNTER<NORMAL/TIME CODE>

- Seleccione NORMAL para utilizar el contador de cinta normal.
- Seleccione TIME CODE para utilizar el códio de tiempo RC (pág. 54) como contador de la cinta.

COMMANDER<ON/OFF>

- Seleccione ON cuando desee utilizar el telemando suministrado para controlar la videocámara.
- Seleccione OFF cuando no vaya a utilizar el telemando.

BEEP<ON/OFF>

- Seleccione ON para oír el pitido al iniciar o parar la grabación confirmando la operación.
- Seleccione OFF cuando no desee oír el pitido.

DISP.ADJ

Seleccione este ítem y cambie el nivel del indicador girando el dial de menú para ajustar la intensidad del color de la imagen cuando utilice el LCD.

Ítemes para el modo CAMERA solamente

WIND<ON/OFF>

- Seleccione ON para reducir el ruido del viento durante la grabación.
- Normalmente seleccione OFF.

Hi8<AUTO/OFF>

- Normalmente seleccione AUTO para que la videocámara elija automáticamente el modo de grabación (Hi8 u 8 mm estándar) de acuerdo con el tipo de videocassette empleado.
- Seleccione OFF para grabar una cinta Hi8 en 8 mm estándar. Con respecto a los tipos de videocassettes, consulte la página 61.

D ZOOM<ON/OFF>

- Seleccione ON para activar el zoom digital.
- Seleccione OFF cuando no utilice el zoom digital. La videocámara volverá a ajustarse al zoom de 10x.

REC LAMP<ON/OFF>

- Seleccione OFF cuando no desee que la lámpara de videofilmación/estado de la batería que se encuentra en la parte frontal de la unidad se encienda.
- Normalmente seleccione ON.

CLOCK SET

Seleccione este ítem para reajustar la fecha o la hora.

Ítemes para el modo PLAYER solamente

EDIT<ON/OFF>

- Seleccione ON para mantener al mínimo la degradación de la imagen en la edición.
- Normalmente seleccione OFF.

HiFi SND<STEREO/1/2>

- Normalmente seleccione STEREO.
- Seleccione 1 o 2 para reproducir una cinta grabada con sonido doble.

Letting the Subject Monitor the Shot

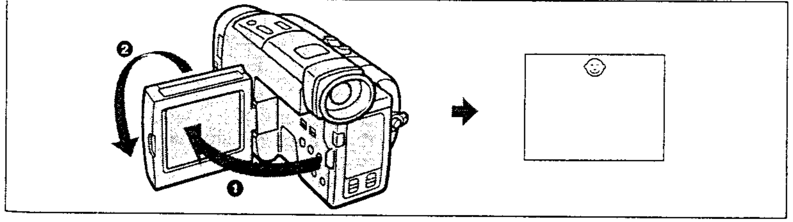
You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel vertically first until it clicks, then turn it over. The ☺ indicator appears on the LCD screen **(Mirror mode)** and the date, remaining battery and remaining tape indicators disappear.

Para que el motivo pueda comprobar la toma

Usted podrá girar el panel LCD de forma que quede mirando hacia el otro lado y el motivo pueda comprobar la toma mientras videofilme con el visor.

Primero gire verticalmente el panel LCD hasta que chasquee, y después gírelo hacia el otro lado. En la pantalla LCD aparecerá el indicador ☺ **(modo de espejo)** y desaparecerán la fecha, y los indicadores de batería y cinta restante.



See the next page for further information.

Para más información, vea la página siguiente.

Letting the Subject Monitor the Shot

To Cancel Mirror Mode

Close the LCD panel.

Notes on mirror mode

- When you turn the LCD panel about 135 degrees to 180 degrees, the camcorder enters mirror mode.
- Using the mirror mode, you can record yourself while watching yourself on the LCD **[a]**.
- The picture on the LCD looks as a mirror-image while recording in mirror mode **[b]**. The STBY indicator appears as ●II and REC as ●.
- While recording in mirror mode, you can operate only the following buttons and switches: POWER, STANDBY, START/STOP, EDITSEARCH, STEADY SHOT, BRIGHT, VOLUME, EJECT and the power zoom button.

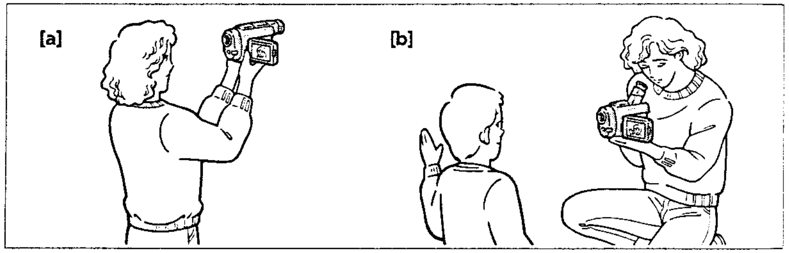
Para que el motivo pueda comprobar la toma

Para cancelar el modo de espejo

Cierre el panel LCD.

Notas sobre el modo de espejo

- Cuando gire el panel LCD unos 135 a 180 grados, la videocámara pasará al modo de espejo.
- Empleando el modo de espejo, usted podrá videofilmarse viéndose en la pantalla LCD **[a]**.
- La imagen en la pantalla LCD se verá como la de un espejo mientras grabe en el modo de espejo **[b]**. El indicador STBY aparecerá como ●II y REC como ●.
- Mientras videofilme en el modo de espejo, usted podrá activar solamente las teclas y selectores siguientes: POWER, STANDBY, START/STOP, EDITSEARCH, STEADY SHOT, BRIGHT, VOLUME, EJECT y la tecla del zoom motorizado.



Fade-in and Fade-out

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases.
When fading out, the picture gradually fades to black or mosaic while the sound decreases.

Aumento gradual y desvanecimiento

Podrá realizar el aumento gradual o el desvanecimiento para dar a sus grabaciones un aspecto profesional.
Cuando realice el aumento gradual, la imagen aparecerá gradualmente desde un fondo negro o de mosaico mientras aumenta el sonido. Cuando realice el desvanecimiento, la imagen desaparecerá gradualmente hacia un fondo negro o de mosaico mientras disminuye el sonido.

Fade-in and Fade-out

When Fading in [a]

(1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When Fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.

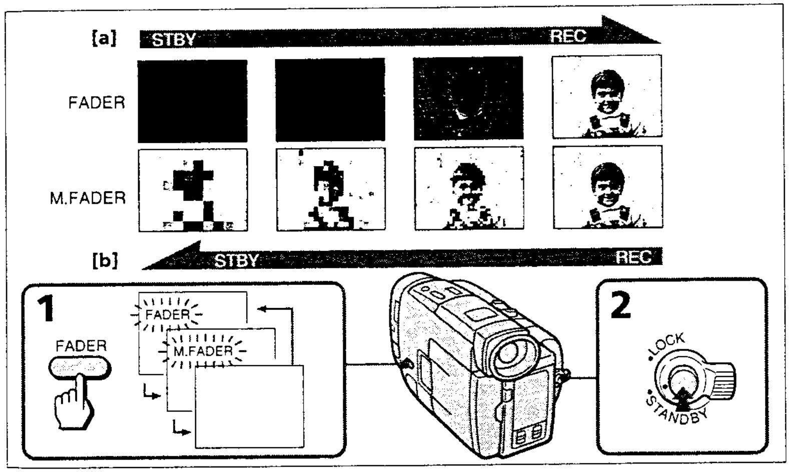
Aumento gradual y desvanecimiento

Aumento gradual [a]

(1) Mientras la videocámara esté en el modo de espera, presione FADER. El indicador de aumento gradual y desvanemiento empezará a parpadear.
(2) Presione START/STOP para empezar a grabar. El indicador de aumento gradual y desvanecimiento dejará de parpadear.

Desvanecimiento [b]

(1) Durante la grabación, presione FADER. El indicador de aumento gradual y desvanecimiento empezará a parpadear.
(2) Presione START/STOP para parar la grabación. El indicador de aumento gradual y desvanecimiento dejará de parpadear, y la grabación se parará.



To Cancel the Fade-in/Fade-out Function

Before pressing START/STOP, press FADER until the fade indicator disappears.

When the date or time indicator is displayed

The date or time indicator does not fade in nor fade out.

Para cancelar la función de aumento gradual y desvanecimiento

Antes de presionar START/STOP, presione FADER hasta que desaparezca el indicador de aumento gradual y desvanecimiento.

Cuando se visualice el indicador de la fecha o la hora

El indicador de la fecha o la hora no aumentará gradualmente ni se desvanecerá.

Using the Wide Mode Function

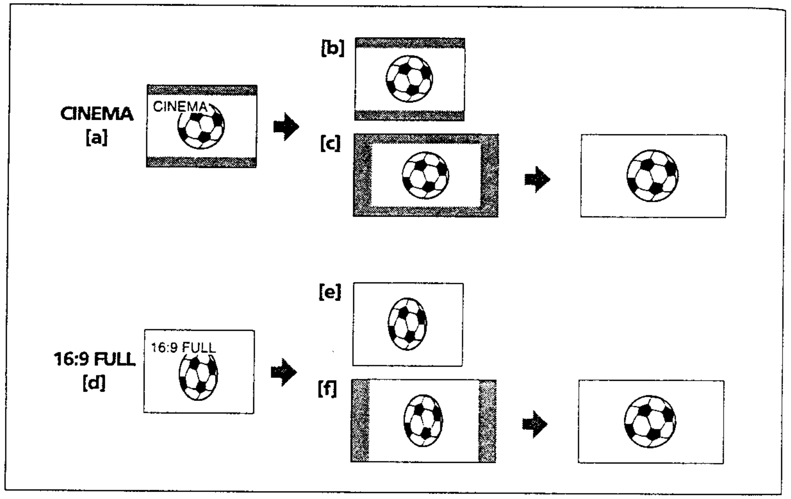
Utilización de la función de imagen panorámica

Selecting the Desired Mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).

Selección del modo deseado

Usted podrá grabar una imagen como la del cine (CINEMA) o una imagen alargada para verla en un televisor panorámico 16:9 (16:9 FULL).



CINEMA

Black bands appear at the top and the bottom of the screen, and the viewfinder/LCD screen **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**.

16:9 FULL

The picture in the viewfinder/LCD screen **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

CINEMA

En las partes inferior y superior de la pantalla aparecerán franjas negras y las pantallas del visor/pantalla LCD **[a]** y la de un televisor normal **[b]** aparecerán como alargadas. La imagen podrá verse también sin las bandas negras en un televisor panorámico **[c]**.

16:9 FULL

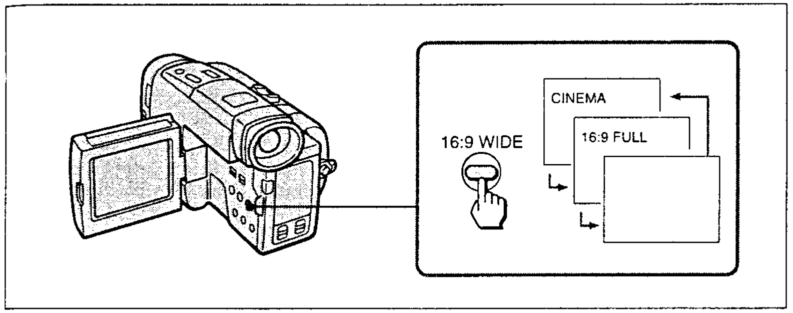
La imagen en el visor/pantalla LCD **[d]** o en un televisor normal se comprime horizontalmente. Las imágenes de una grabación normal podrán verse también en un televisor de pantalla panorámica **[f]**.

Using the Wide Mode Function

Press 16:9 WIDE to select the desired wide mode. The indicator of the selected wide mode appears in the viewfinder or on the LCD screen.

Utilización de la función de modo panorámico

Presione 16:9 WIDE para seleccionar el modo panorámico deseado. El indicador del modo panorámico seleccionado aparecerá en el visor o en la pantalla LCD.



To Cancel Wide Mode

Press 16:9 WIDE until the wide mode indicator disappears.

To Watch the Tape Recorded in Wide Mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode

- If wide mode is set to 16:9 FULL, the Steady shot function does not work and the "✋" indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.

Para cancelar el modo panorámico

Presione 16:9 WIDE hasta que desaparezca el indicador del modo panorámico.

Para ver la grabación en el modo panorámico

Para ver la grabación en el modo CINEMA, ajuste el modo de pantalla del televisor panorámico al modo de zoom. Para ver la grabación en el modo 16:9 FULL, ajústelo al modo completo. Con respecto a los detalles, consulte el manual de instrucciones del televisor. Tenga en cuenta que las imágenes grabadas en el modo FULL se verán comprimidas en un televisor normal.

Notas sobre el modo panorámico

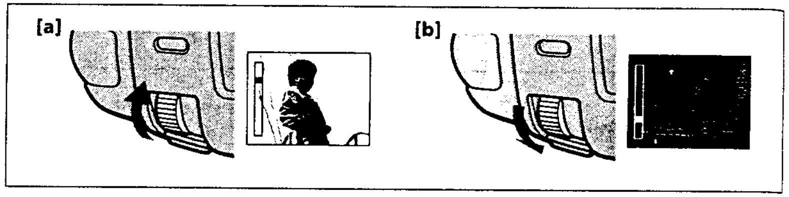
- Si el modo panorámico está ajustado a 16:9 FULL, la función de videofilmación estable no trabajará y el indicador "✋" parpadeará.
- Cuando grabe en el modo 16:9 FULL, el indicador de la fecha o la hora se ensanchará en un televisor panorámico.
- Si duplica una cinta, ésta se copiará en el mismo modo que la grabación original.

Adjusting the Exposure

Ajuste de la exposición

When to Adjust the Exposure

Adjust the exposure manually under the following cases.



[a] Turn the menu dial up when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the menu dial down when:
- Bright subject and dark background
- To record the darkness faithfully

Cuándo ajustar la exposición

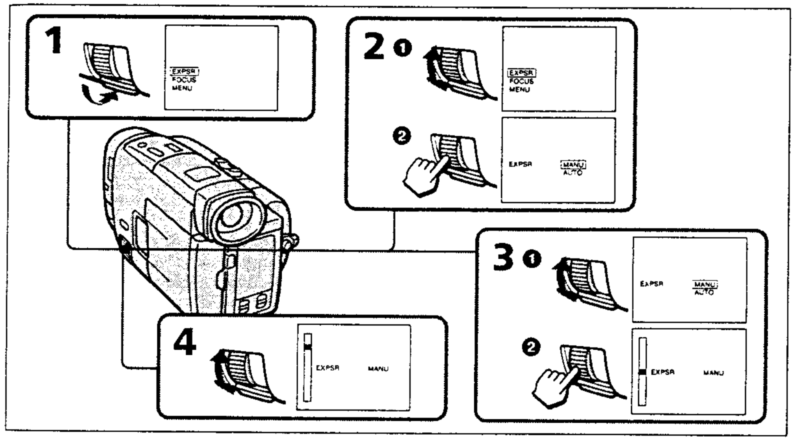
En los casos siguientes, ajuste manualmente la exposición.

[a] Gire el dial de menú hacia arriba cuando:
- El fondo sea demasiado brillante (contraluz)
- La iluminación es insuficiente: la mayor parte de la imagen es oscura

[b] Gire el dial de menú hacia abajo cuando:
- El motivo es brillante y el fondo oscuro
- Para videofilmar bien en la oscuridad

Adjusting the Exposure

(1) While the camcorder is in standby mode, open the AUTO LOCK/MENU cover to display the menu.
(2) Turn the menu dial to select EXPSR, then press the dial.
(3) Turn the menu dial to select MANU, then press the dial.
(4) Turn the menu dial to adjust exposure. The exposure is locked at the adjusted brightness.



To Return to Automatic Exposure Mode

Select AUTO in Step 3, or close the AUTO LOCK/MENU cover.

Shooting with the sun behind you

If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark

We recommend you to use a video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Ajuste de la exposición

(1) Mientras la videocámara esté en el modo de espera, abra la cubierta AUTO LOCK/MENU para visualizar el menú.
(2) Gire el dial de menú para seleccionar EXPSR, después presione el dial.
(3) Gire el dial de menú para seleccionar MANU, después presione el dial.
(4) Gire el dial de menú para ajustar la exposición. La exposición se bloqueará al brillo ajustado.

Para volver al modo de exposición automática

Seleccione AUTO en el paso 3, o cierre la cubierta AUTO LOCK/MENU.

Videofilme con el sol a sus espaldas

Si videofilma una escena con la fuente de iluminación detrás del motivo, o con las siguientes condiciones, el motivo se grabará demasiado oscuro.
- El motivo está en interiores y hay una ventana detrás de él.
- La escena incluye fuentes brillantes.
- Cuando videofilme una persona vestida de blanco o ropa brillante frente a un fondo blanco, el rostro se grabará demasiado oscuro.

Para videofilmar en la oscuridad

Se recomienda utilizar una lámpara de vídeo (no suministrada). Para conseguir el mejor color, deberá mantener el nivel de iluminación suficiente.

Focusing Manually

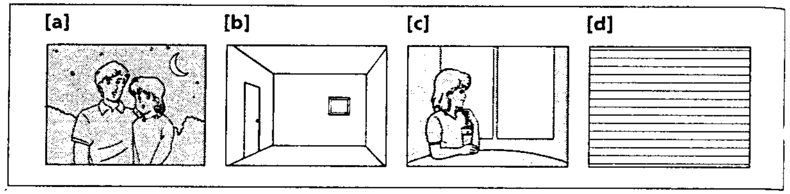
Enfoque manual

When to Use Manual Focus

In the following cases you should obtain better results by adjusting the focus manually.

Cuándo utilizar el enfoque manual

En los casos siguientes se obtendrán mejores resultados ajustando manualmente el enfoque.



- Insufficient light **[a]**
- Subjects with little contrast —walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subject through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

- Luz insuficiente **[a]**
- Motivos con poco contraste — paredes, cielo, etc. **[b]**
- Demasiado brillo detrás del motivo **[c]**
- Rayas horizontales **[d]**
- Motivos situados detrás de un vidrio con escarcha
- Motivos situados detrás de redes, etc.
- Motivo brillante o que refleja luz
- Cuando videofilme un motivo estacionario utilizando un trípode

Focusing Manually

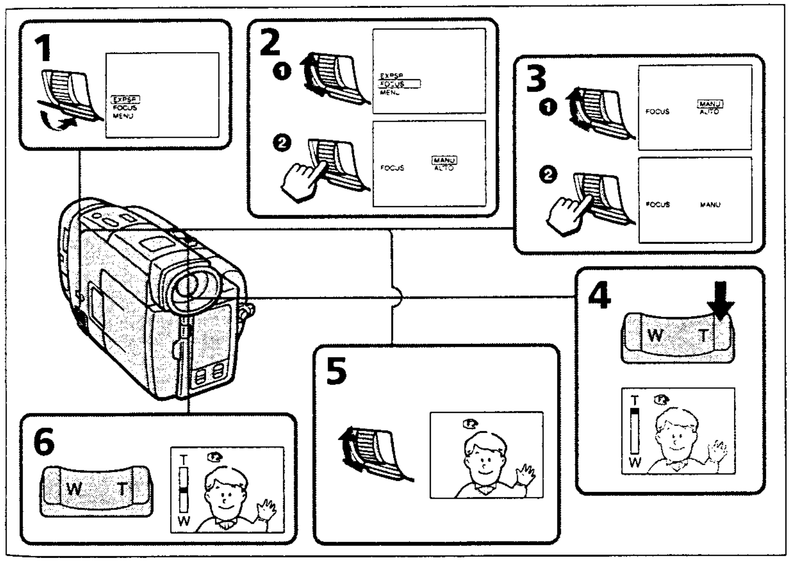
When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) While the camcorder is in standby mode, open the AUTO LOCK/MENU cover to display the menu.
(2) Turn the menu dial to select FOCUS, then press the dial.
(3) Turn the menu dial to select MANU, then press the dial. The ⓕ indicator appears.
(4) Keep pressing the "T" (telephoto) side of the power zoom button until zooming stops.
(5) Turn the menu dial to achieve a sharp focus.
(6) Set the desired shot length using the power zoom button.

Enfoque manual

Cuando ajuste manualmente el enfoque, ajuste primero a la posición de telefoto antes de filmar y después ajuste la distancia de videofilmación.

(1) Mientras la videocámara esté en el modo de espera, abra la cubierta AUTO LOCK/MENU para visualizar el menú.
(2) Gire el dial de menú para seleccionar FOCUS, después presione el dial.
(3) Gire el dial de menú para seleccionar MANU, después presione el dial. Aparecerá el indicador ⓕ.
(4) Mantenga presionado el lado "T" (telefoto) de la tecla del zoom motorizado hasta que el zoom se detenga.
(5) Gire el dial de menú hasta enfocar nítidamente.
(6) Ajuste la distancia de videofilmación deseada con la tecla del zoom motorizado.



To Return to Autofocus Mode

Select AUTO in Step 3, or close the AUTO LOCK/MENU cover.

Shooting in relatively dark places

Shoot at wide-angle after focusing in the telephoto position.

Para volver al modo de enfoque automático

Seleccione AUTO en el paso 3, o cierre la cubierta AUTO LOCK/MENU.

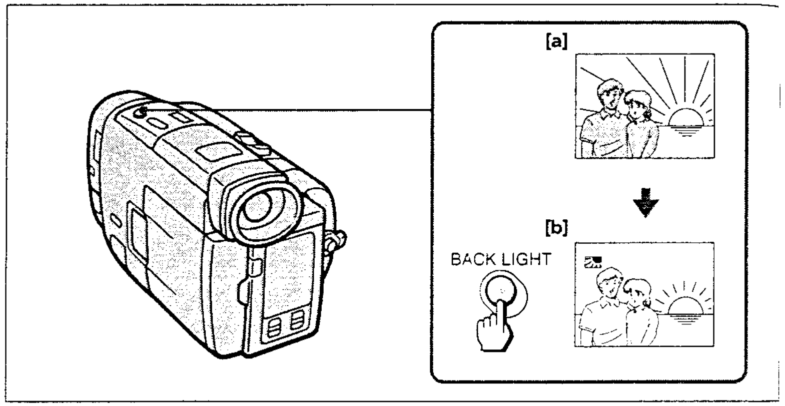
Para videofilmar en lugares relativamente oscuros

Videofilme en gran angular después de haber enfocado en telefoto.

Shooting with Backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ▣ indicator appears in the viewfinder or on the LCD screen.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After Shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. The ▣ indicator disappears. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under the following conditions:

- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

Videofilmación con iluminación de fondo

Cuando filme un motivo con la fuente de luz detrás de él o un motivo con un fondo iluminado, emplee la función BACK LIGHT.

Presione BACK LIGHT. El indicador ▣ aparecerá en el visor o en la pantalla LCD.

[a] El motivo está demasiado oscuro debido a la iluminación de fondo.
[b] El motivo adquiere brillo con la compensación de iluminación de fondo.

Después de filmar

No se olvide de cancelar esta condición de ajuste presionando otra vez BACK LIGHT. El indicador ▣ desaparecerá. De otra forma, la imagen tendrá un brillo excesivo bajo condiciones de iluminación normal.

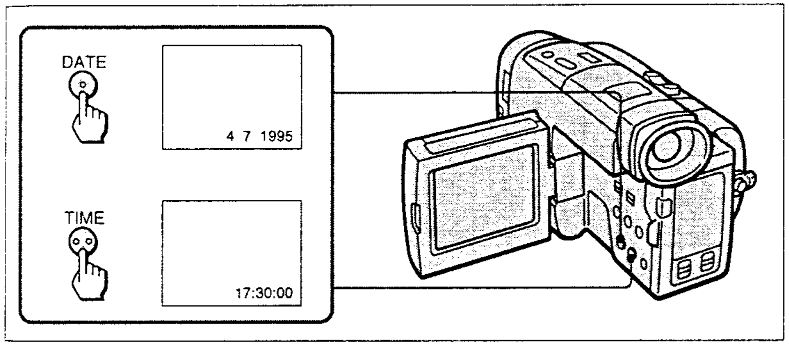
Esta función también será eficaz bajo las condiciones siguientes:

- En la nieve, por ejemplo, en una estación invernal
- En la playa bajo un sol intenso
- Cuando un motivo tenga una fuente de luz próxima o un espejo que refleje luz.
- Cuando un motivo blanco tenga un fondo blanco. Especialmente cuando filme a una persona con ropas brillantes de seda o fibra sintética, su rostro tenderá a oscurecerse si no emplea esta función.

Recording with the Date or Time

You can record the date or time displayed on the LCD screen or in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator on the LCD screen or in the viewfinder is recorded.
The clock is already set at the factory; to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu system (p. 60).

Press DATE or TIME before you start recording.



To Stop Recording with the Date or Time

Press DATE or TIME again. The date or time indicator disappears. The recording continues without the date or time.

Grabación con la fecha o la hora

Con la imagen podrá grabar la fecha o la hora visualizada en la pantalla LCD o en el visor. La fecha y la hora no podrán grabarse al mismo tiempo. Exceptuando el indicador de la fecha o la hora, ningún otro indicador de la pantalla LCD o del visor se grabará.
El reloj ya ha sido ajustado en fábrica, a la hora de Londres para el Reino Unido y a la de París para los demás países europeos. El reloj podrá reajustarse en el sistema de menú (pág. 60).

Presione DATE o TIME antes de comenzar a grabar.

Para parar la grabación con la fecha o la hora

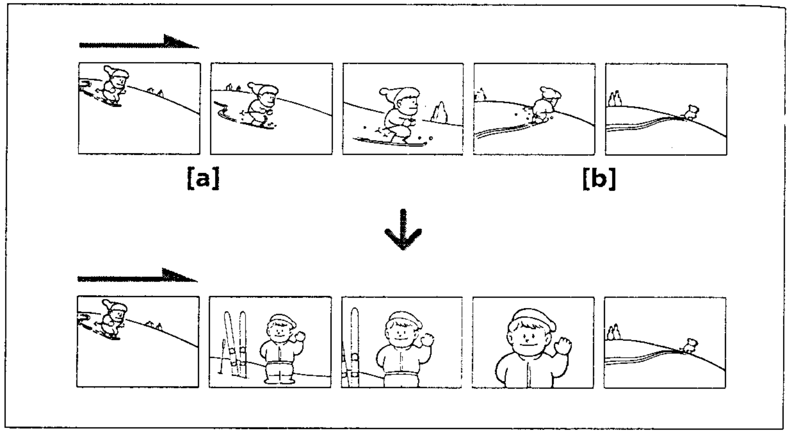
Presione otra vez DATE o TIME. El indicador de la fecha o la hora desaparecerá. La grabación continuará sin fecha u hora.

Inserting a Scene in the Middle of a Recorded Tape

Inserción de una escena en medio de una cinta grabada

You can insert a scene in the middle of a recorded tape by setting the starting point and ending point. A previously recorded portion will be erased.

Usted podrá insertar una escena en medio de una cinta grabada ajustando el punto de comienzo y el de finalización. La grabación previamente realizada se borrará.



Use the tape counter.
When the RC time code appears, set COUNTER to NORMAL in the menu system (p. 30) to display the tape counter.

(1) While the camcorder is in Standby mode, keep pressing the + or − side of EDITSEARCH and release the button where you want to end the insertion **[b]**.

(2) Press COUNTER RESET to set the counter to zero.

(3) Keep pressing the − side of EDITSEARCH and release the button where you want to start the insertion **[a]**.

(4) Press ZERO MEM to stop recording of insert at the counter's zero point.

(5) Press START/STOP. Insert recording begins. The insert recording stops automatically at the counter zero point.

Utilice el contador de la cinta.
Cuando aparezca el código de tiempo RC ponga COUNTER en NORMAL en el sistema de menú (pag. 30) para visualizar el contador de la cinta.

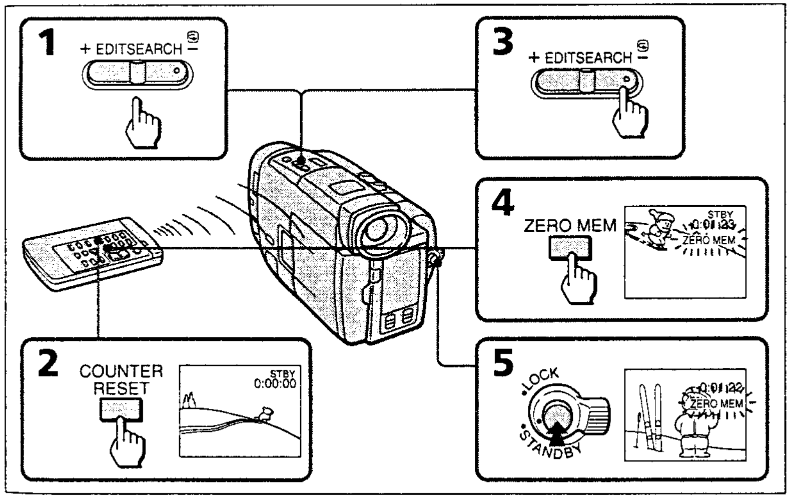
(1) Mientras la videocámara esté en el modo de espera, mantenga presionado el lado + o − de EDITSEARCH y suéltelo cuando desee finalizar la inserción **[b]**.

(2) Presione COUNTER RESET para ajustar el contador a cero.

(3) Mantenga presionado el lado − de EDITSEARCH y suéltelo en el punto en el que desee iniciar la inserción **[a]**.

(4) Presione ZERO MEM para que la grabación con inserción finalice en el punto cero del contador.

(5) Presione START/STOP. Se iniciará la grabación con inserción. La grabación con inserción finalizará automáticamente en el punto cero del contador.



To Cancel the ZERO MEM

Press ZERO MEM again. The ZERO MEM indicator disappears.

Note on the recorded picture

The picture may be distorted at the ending point when played back.

Para cancelar la memoria del punto cero

Presione nuevamente ZERO MEM. El indicador ZERO MEM desaparecerá.

Nota sobre la imagen grabada

Es posible que las imágenes se distorsionen en el punto de finalización cuando las reproduzca.

Releasing the STEADY SHOT Function

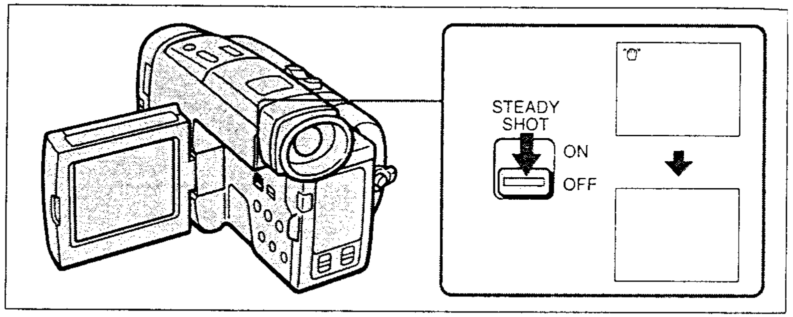
When you shoot, the Ʊ indicator appears in the viewfinder. This indicates that the Steady shot function is working and the camcorder compensates for camera-shake.
You can release the Steady shot function when you do not need to use the Steady shot function. Do not use the Steady shot function when shooting a stationary object with a tripod.

Set STEADY SHOT to OFF.

Cancelación de la función de filmación estable

Cuando filme, el indicador Ʊ aparecerá en el visor. Esto indicará que la función de filmación estable está funcionando y que la videocámara compensa sus propias vibraciones.
Podrá desactivar la función de filmación estable cuando no la necesite. No emplee esta función cuando filme un objeto estacionario con la videocámara sobre un trípode.

Ponga STEADY SHOT en OFF.



To Activate the Steady Shot Function Again

Set STEADY SHOT to ON.

Notes on the Steady shot function

- The Steady shot function will not correct excessive camera-shake.
- When you switch the Steady shot function on or off, the exposure may fluctuate.
- When you record in 16:9 FULL mode, the Steady shot function does not work and the Ʊ indicator flashes.

Para activar otra vez la función de filmación estable

Ponga STEADY SHOT en ON.

Notas sobre la función de filmación estable

- La función de filmación estable no corregirá las vibraciones excesivas de la videocámara.
- Cuando active y desactive la función de filmación estable, es posible que la exposición fluctúe.
- Cuando grabe en el modo 16:9 FULL, la función de filmación estable no funcionará y el indicador Ʊ parpadeará.

Watching on a TV Screen

You can use the camcorder as a VCR. Connect the camcorder to the TV by using the supplied HSA-V515 Handycam Station or the supplied A/V connecting cable. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you use the mains for the power source (p. 25).

While playing back on a TV screen, close the LCD panel. Otherwise, picture distortion may occur.

Para ver la grabación en la pantalla de un televisor

Usted podrá utilizar la videocámara para que funcione como videograbadora. Conecte la videocámara al televisor con el interconectador HSA-V515 suministrado o el cable conector de audio/vídeo suministrado. Cuando desee ver la imagen de reproducción conectando la videocámara al televisor, se recomienda que utilice la corriente de la red como fuente de alimentación (pág. 25).

Mientras visualice las imágenes en la pantalla del televisor, cierre el panel LCD. De lo contrario, es posible que se produzca distorsión de la imagen.

Connecting to a TV Using the Handycam Station

Once you connect the supplied HSA-V515 Handycam Station to your TV or VCR, you can easily view the picture on your TV.

To Connect the Handycam Station to a TV

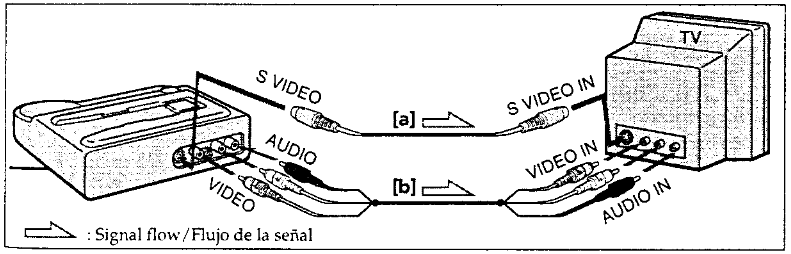
Connect the Handycam Station to the inputs on the TV using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.
If you are going to connect the Handycam Station using the S video cable **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.

Conexión a un televisor utilizando el interconectador

Si conecta el interconectador HSA-V515 suministrado al televisor o la videograbadora, podrá ver fácilmente la imagen en el televisor.

Para conectar el interconectador al televisor

Conecte el interconectador a las entradas del televisor con el cable conector de audio/vídeo suministrado. Ponga el selector TV/VCR del televisor en VTR.
Si va a conectar el interconectador con el cable de vídeo S **[a]**, no será necesario que conecte la clavija amarilla (vídeo) del cable conector de audio/vídeo **[b]**.



⇨ : Signal flow/Flujo de la señal

See the next page for further information.

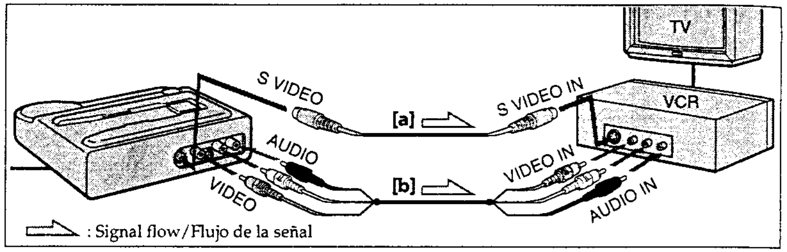
Para más información, vea la página siguiente.

Watching on a TV Screen

Para ver la grabación en la pantalla de un televisor

If your TV is already connected to a VCR
Connect the Handycam Station to the LINE IN inputs on the VCR by using the A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.

Si su televisor ya está conectado a una videograbadora
Conecte el interconectador a las entradas LINE IN de la videograbadora con el cable conector de audio/vídeo. Ajuste el selector de entrada de la videograbadora a LINE. Ponga el selector TV/VCR del televisor en VCR.



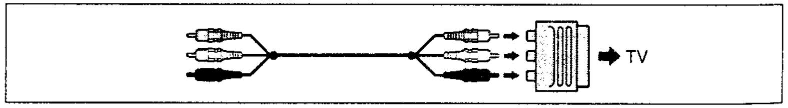
⇨ : Signal flow/Flujo de la señal

If your TV or VCR is a monaural type
Connect only the white plug for audio on both the Handycam Station and the TV or VCR. With this connection, the sound is monaural.

Si su televisor o videograbadora es de tipo monoaural
Conecte solamente la clavija blanca para audio del interconectador y el televisor o la videograbadora. Con esta conexión, el sonido será monoaural.

If your TV has a 21-pin connector (EUROCONNECTOR)
Use the supplied 21-pin adaptor.

Si su televisor posee conector de 21 terminales (EUROCONNECTOR)
Utilice el adaptador de 21 terminales suministrado.



To connect to a TV or VCR without Video/Audio input jacks
Use an RFU adaptor (not supplied).

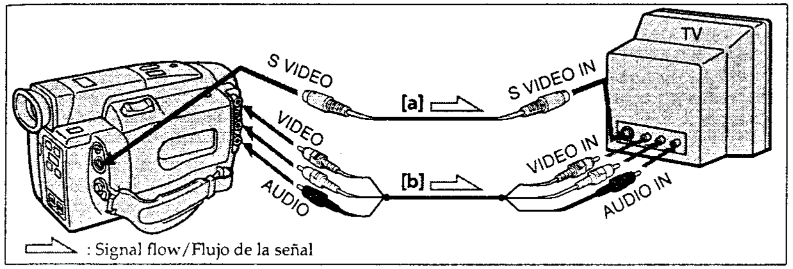
Conexión a un televisor o una videograbadora desprovista de tomas de entrada de vídeo/audio
Utilice un adaptador de RFU (no suministrado).

Connecting Directly to a TV

Conexión directa a un televisor

Connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.
If you are going to connect the camcorder using S video cable **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.

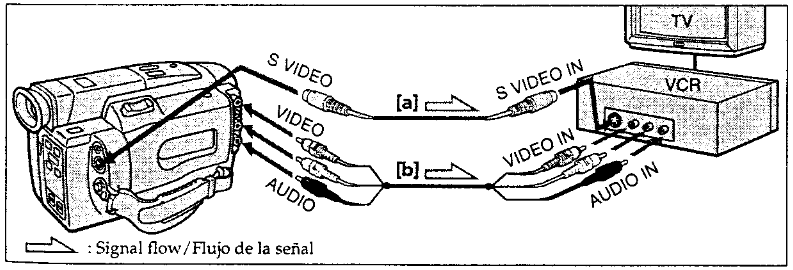
Conecte la videocámara a las entradas del televisor con el cable conector de audio/vídeo suministrado. Ponga el selector TV/VCR del televisor en VCR.
Si va a conectar la videocámara con el cable de vídeo S **[a]**, no será necesario que conecte la clavija amarilla (vídeo) del cable conector de audio/vídeo **[b]**.



⇨ : Signal flow/Flujo de la señal

If your VCR is already connected to a TV
Connect the camcorder to the LINE IN inputs on the VCR by using the A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.

Si su videograbadora ya está conectada a un televisor
Conecte la videocámara a las entradas LINE IN de la videograbadora con el cable conector de audio/vídeo. Ajuste el selector de entrada de la videograbadora a LINE. Ponga el selector TV/VCR del televisor en VCR.



⇨ : Signal flow/Flujo de la señal

If your TV or VCR is a monaural type
Connect only the white plug for audio on both the camcorder and the TV or VCR. With this connection, the sound is monaural.

Si su televisor o videograbadora es de tipo monoaural
Conecte solamente la clavija blanca para audio de la videocámara y el televisor o la videograbadora. Con esta conexión, el sonido será monoaural.

Returning to a Pre-registered Position

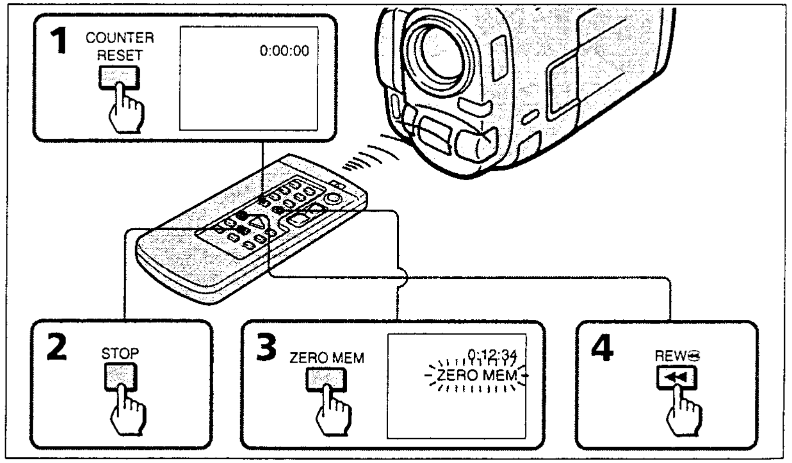
Vuelta al punto previamente registrado

Using the Remote Commander, you can easily go back to the desired point on a tape after playback.
Use the tape counter.
When the RC time code appears, set COUNTER to NORMAL in the menu system (p. 30) to display the tape counter.

(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00" in the viewfinder or on the LCD screen.
(2) Press ■ when you want to stop playback.
(3) Press ZERO MEM. The ZERO MEM indicator flashes in the viewfinder or on the LCD screen.
(4) Press ◀◀ to rewind the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.

Utilizando el telemando, podrá volver fácilmente al punto deseado después de la reproducción.
Emplee el contador de la cinta.
Cuando aparezca el código de tiempo RC, ponga COUNTER en NORMAL en el sistema de menú (pág. 30) para visualizar el contador de la cinta.

(1) Durante la reproducción, presione COUNTER RESET en el punto que desee localizar más tarde. El contador mostrará "0:00:00" en el visor o la pantalla LCD.
(2) Presione ■ cuando desee parar la reproducción.
(3) Presione ZERO MEM. En el visor o la pantalla LCD parpadeará el indicador ZERO MEM.
(4) Presione ◀◀ para rebobinar la cinta hasta el punto cero del contador de la cinta. La cinta se parará automáticamente cuando el contador llegue aproximadamente a cero.



Notes on the tape counter
- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notas sobre el contador de la cinta
- Para que el contador funcione, deberá tener algo grabado en la cinta. El contador no trabajará en una cinta en blanco.
- Es posible que exista una diferencia de varios segundos entre el contador y el tiempo real.

Notes on ZERO MEM
- When you press ZERO MEM, the counter's zero point is memorized.
- This function is canceled automatically once the tape is rewound or sent forward to the point you pre-registered.
- ZERO MEM does not function during recording or playing back.

Using this Function in Reverse

You can return to a desired point after rewinding with this function. Press COUNTER RESET at the point you want to return to later. Press ◀◀. Press □ when you want to stop rewinding. Press ZERO MEM. Press ▶▶. The tape automatically stops near the zero point you first set.

Notas sobre ZERO MEM
- Cuando presione ZERO MEM, se memorizará el punto cero del contador.
- Esta función se cancelará automáticamente cuando la cinta se rebobine o avance hasta el punto previamente registrado.
- ZERO MEM no funcionará durante la grabación ni la reproducción.

Empleo de esta función en el rebobinado

Usted podrá volver a un punto deseado después de rebobinar la cinta con esta función. Presione COUNTER RESET en el punto al que desee volver más tarde. Presione ◀◀. Presione □ cuando desee parar el rebobinado. Presione ZERO MEM. Presione ▶▶. La cinta se parará automáticamente cerca del punto cero establecido en primer lugar.

Locating the Marking Position

You can locate the beginning of a desired programmes easily by marking an index signal during recording or playback and searching for it later.

Marking an Index Signal

You can mark an index signal during recording or playback. You can mark it only with the Remote Commander.

See the next page for further information.

Localización del punto marcado

Usted podrá localizar fácilmente el comienzo del programa deseado marcando una señal de índice durante la grabación o la reproducción y localizándola más tarde.

Marcación de una señal de índice

Usted podrá marcar una señal de índice durante la grabación o la reproducción. Solamente podrá marcarla con el telemando.

Para más información, vea la página siguiente.

Locating the Marking Position

Localización del punto marcado

When Marking at the Beginning of Recording or Playback

Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder or on the LCD screen with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

When Marking during Recording or Playback

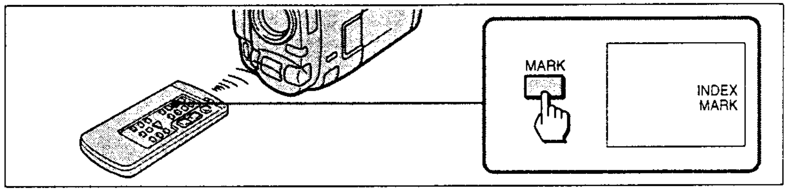
Press INDEX MARK on the Remote Commander at the point you want to locate later.

Marcación en el comienzo de la grabación o la reproducción

Presione INDEX MARK del telemando en el modo de grabación en espera o reproducción en pausa. En el visor o la pantalla LCD aparecerá el indicador INDEX MARK con el indicador MARK parpadeando. Cuando comience la grabación o la reproducción, el indicador MARK dejará de parpadear. Esto indicará que la señal de índice se está marcando. Después el indicador INDEX MARK desaparecerá.

Marcación durante la grabación o la reproducción

Presione INDEX MARK del telemando en el punto que desee localizar más tarde.



Notes on marking

- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the data code recorded, the data code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the data code immediately before the erase one. If the data code does not exist for more than 30 seconds, the data code displays bars (--).
- You cannot mark an index signal on a tape with the red mark on the cassette exposed.
- You cannot mark an index signal on an NTSC-recorded tape.

Notas sobre la marcación

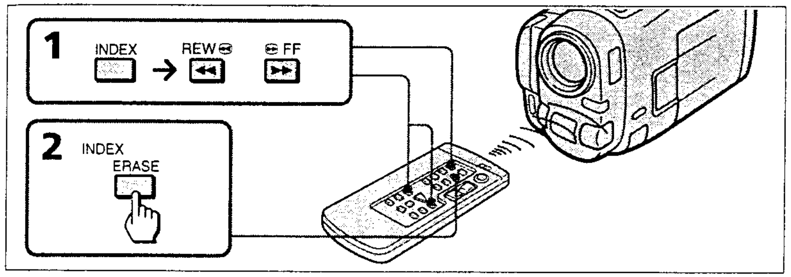
- Asegúrese de marcar señales de índice con un intervalo de más de dos minutos. De lo contrario, es posible que no pueda localizarlas correctamente.
- Si para la grabación mientras esté marcándose una señal de índice (el indicador INDEX MARK aparece en el visor), es posible que la búsqueda no se realice correctamente.
- Si marca una señal de índice en una cinta con código de datos grabado, el mismo se borrará en el punto donde se marque la señal de índice. Cuando reproduzca esta cinta, se visualizará el código de datos inmediatamente anterior al borrado. Si no hay código de datos durante más de 30 segundos, se visualizarán las barras (--).
- Usted no podrá marcar una señal de índice cuando el cassette tenga la marca roja al descubierto.
- Usted no podrá marcar una señal de índice en una cinta grabada en el sistema NTSC.

Erasing an Index Signal

(1) Locate the index signal to be erased using the index scan or index search function. (p. 52, 53)
(2) Press INDEX ERASE on the Remote Commander within 2 to 10 seconds while the desired programme plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in Step 1.

Borrado de una señal de índice

(1) Localice la señal de índice que desee borrar con la función de exploración o la búsqueda con señales de índice (pág. 52, 53).
(2) Presione INDEX ERASE del telemando durante 2 a 10 segundos mientras esté reproduciéndose el programa deseado. Después de que la señal de índice se haya borrado, la videocámara volverá al modo de exploración o búsqueda con señales de índice, el que haya activado en el paso 1.



Notes on erasingd

- Press ERASE more than 2 seconds after the playback of the desired programme begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- You cannot erase an index signal on an NTSC-recorded tape.
- While the index signal is being erased, the sound cannot be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but cannot erase them. VCRs with an index function can detect index signals marked with this camcorder but cannot erase them.
- An index signal may be erased when making PCM after recording in the portion where the index signal is marked.

Notas sobre el borrado

- Presione ERASE durante más de 2 segundos después de que haya comenzado la reproducción del programa deseado.
- Usted no podrá borrar señales de índice cuando el cassette tenga la marca roja al descubierto.
- Usted no podrá borrar una señal de índice marcada en una cinta grabada en el sistema NTSC.
- Mientras esté borrándose una señal de índice, el sonido no podrá oírse y aparecerá una franja negra en la parte inferior de la imagen. Esto no afectará el sonido o la imagen grabada.
- La videocámara podrá detectar señales de índice marcadas en videograbadoras, pero no podrá borrarlas. Las videograbadoras provistas de función de índice podrán detectar las señales de índice marcadas en esta videocámara, pero no podrán borrarlas.
- Cuando una parte previamente grabada con señales de índice se convierta en PCM, es posible que las señales de índice se borren.

See the next page for further information.

Para más información, vea la página siguiente.

Locating the Marking Position

Localización del punto marcado

Note on RC time code and data code
When an index signal is erased, the RC time code and data code on the same portion of the tape is also erased. Bars (-‐) appear in place of the RC time code when the portion is played back. To use that tape for editing using an editing controller (not supplied), rewrite the RC time code (p. 54).

Scanning the Beginning of Each Marking Position – Index Scan

Use the Remote Commander. To view the picture on a TV, press DISPLAY.

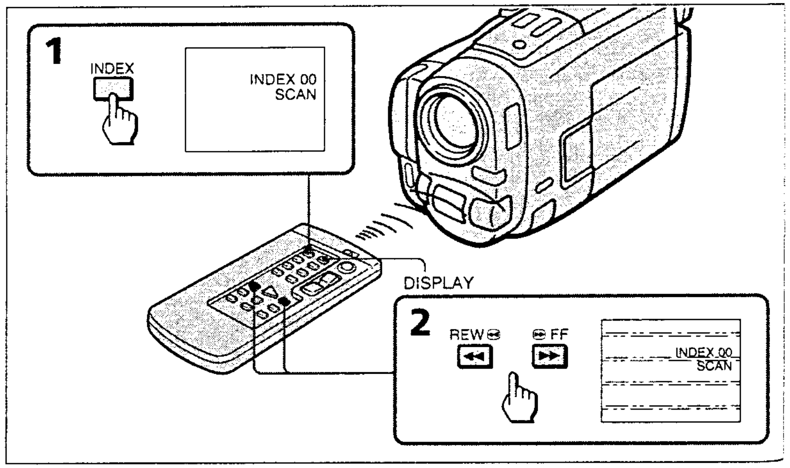
(1) Press INDEX on the Remote Commander.
(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds from the point on which the index signal was marked. If you want to continue playback, press ▷. When you do not press any button, the tape is automatically scanned to the next programme.

Nota sobre los códigos de tiempo RC y de datos
Cuando borre una señal de índice, se borrarán también los códigos de tiempo RC y de datos en el mismo punto. Cuando reproduzca este punto, en el lugar del código de tiempo RC aparecerán las barras (-‐). Para utilizar esta cinta para la edición empleando un controlador de edición (no suministrado), reescriba el código de tiempo RC (pág. 54).

Exploración del punto marcado – Exploración con señales de índice

Utilice el telemando. Para ver las imágenes en el televisor, presione DISPLAY.

(1) Presione INDEX del telemando.
(2) Presione ◀◀ o ▶▶. La cinta se rebobinará o avanzará rápidamente y se reproducirá durante unos 10 segundos desde el punto donde se haya marcado una señal de índice. Si desea continuar la reproducción, presione ▷. Si no presiona ninguna tecla, la videocámara explorará automáticamente el siguiente programa.



To Cancel Index Scan Mode

Press ▷. Normal playback resumes.

Para cancelar el modo de exploración con señales de índice

Presione ▷. Se reanudará la reproducción normal.

Locating the Desired Marking Position – Index Search

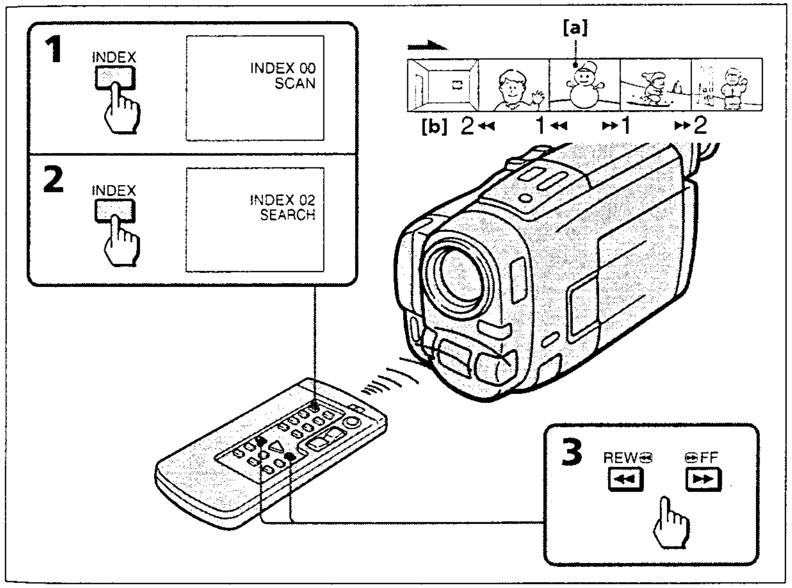
(1) Press INDEX on the Remote Commander during stop or playback mode.
(2) Press INDEX repeatedly until the index number of the desired programme is displayed in the viewfinder or on the LCD screen.
(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired programme.

[a] the current position
[b] the INDEX number

Localización de un punto marcado – Búsqueda con señales de índice

(1) Presione INDEX del telemando durante el modo de parada o reproducción.
(2) Presione repetidamente INDEX hasta que en el visor o la pantalla LCD aparezca el número de índice del programa deseado.
(3) Presione ◀◀ o ▶▶. La reproducción se iniciará desde el comienzo del programa deseado.

[a] posición actual
[b] número de índice



To Stop Index Search Mode

Press ▷. Normal playback resumes.

Para canelar el modo de búsqueda con señales de índice

Presione ▷. Se reanudará la reproducción normal.

Writing the RC Time Code on a Recorded Tape

Escritura del código de tiempo RC en una cinta grabada

You can write the RC time code on a recorded tape. Use the Remote Commander.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER.

(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.

(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder or on the LCD screen with the WRITE indicator flashing.

(4) Press ▷ or II to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.

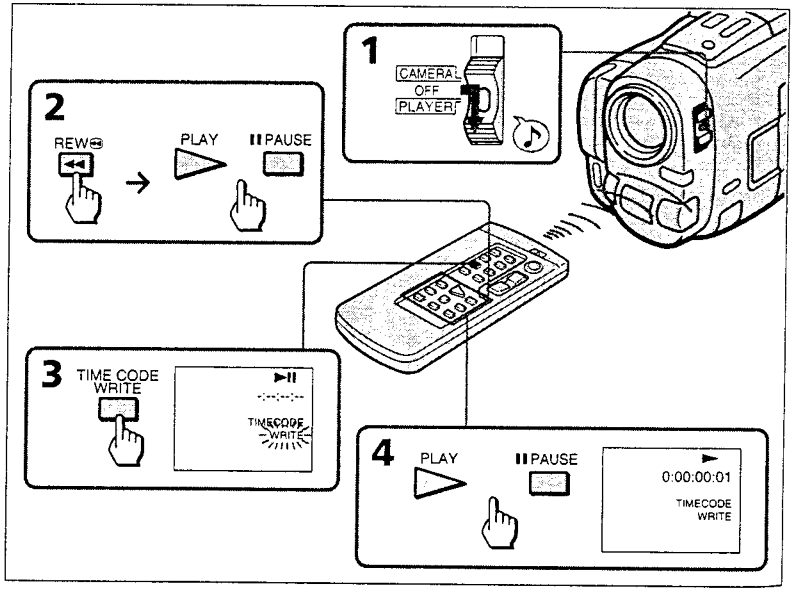
Usted podrá escribir el código de tiempo RC en una cinta grabada. Utilice el telemando.

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta PLAYER.

(2) Rebobine la cinta hasta su comienzo y ponga la videocámara en el modo de reproducción en pausa.

(3) Presione TIME CODE WRITE del telemando. En el visor o en la pantalla LCD aparecerá el indicador TIME CODE WRITE y parpadeará el indicador WRITE.

(4) Presione ▷ o II para iniciar la reproducción. El indicador WRITE dejará de parpadear y el código de tiempo RC se escribirá desde 0:00:00:00.



To Stop Writing the RC Time Code

Press □ (or any tape transport button).

Para cesar la escritura del código de tiempo RC

Presione □ (o cualquier tecla de transporte de la cinta).

To Write the RC Time Code from the End of the RC Time Code Recorded Portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow Steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX before starting playback.
  - you change from playback mode to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- You cannot write the RC time code on an NTSC-recorded tape.

Para escribir el código de tiempo RC a partir del punto final de dicho código grabado

Rebobine la cinta hasta la parte en la que se haya escrito el código de tiempo RC y ponga la videocámara en el modo de reproducción en pausa. Después, realice los pasos 3 y 4 anteriores. El código de tiempo RC se escribirá continuamente.

Notas sobre la escritura del código de tiempo RC

- La escritura del código de tiempo RC se parará cuando:
  - presione nuevamente TIME CODE WRITE antes de iniciar la reproducción.
  - presione INDEX antes de iniciar la reproducción.
  - cambie del modo de reproducción a otro modo.
- Si escribe el código de tiempo RC desde el medio de una cinta sin dicho código, la escritura se iniciará a partir de algunos fotogramas antes de la imagen actual.
- Usted no podrá escribir el código de tiempo RC en una cinta grabada en el sistema NTSC.

Editing onto Another Tape

Edición en otra cinta

You can create your own video programme by editing with any other ▣ 8 mm, **Hi**▣ Hi8, VHS VHS, **S**VHS S-VHS, VHS▣ VHSC, **S**VHS▣ S-VHSC or ▣ Betamax VCR that has audio/video inputs.

Usted podrá crear su propio programa de vídeo editando con cualquier otra videograbadora ▣ 8 mm, **Hi**▣ Hi8, VHS VHS, **S**VHS S-VHS, VHS▣ VHSC, **S**VHS▣ S-VHSC o ▣ Betamax que disponga de entradas de vídeo/audio.

Before Editing

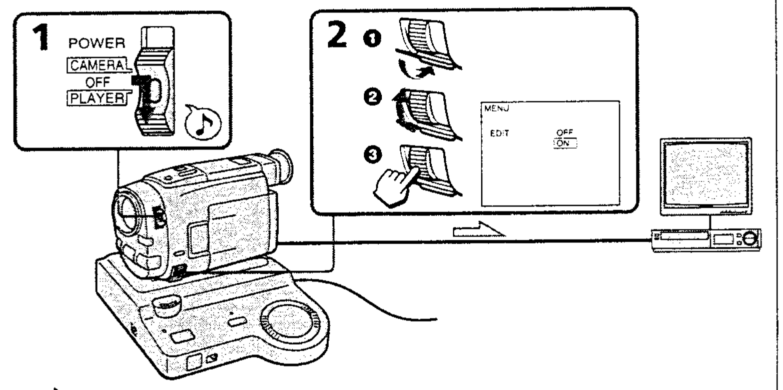
Connect the camcorder to the VCR using the Handycam Station (p. 45). You can also connect to the VCR directly using the supplied A/V connecting cable.
Set the input selector on the VCR to LINE, if available.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER.
(2) Set EDIT to ON in the menu system (p. 31).

Antes de editar

Conecte la videocámara a la videograbadora con el interconectador (pág. 45). Tambien podrá conectarla directamente a la videograbadora utilizando el cable conector de audio/vídeo suministrado. Ponga el selector de entrada de la videograbadora en LINE, si tuviese esa posición.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta PLAYER.
(2) Ponga EDIT en ON en el sistema de menú (pág. 31).



⇨ : Signal flow/Flujo de la señal

Starting Editing

Turn down the volume of the camcorder while editing. Otherwise, picture distortion may occur.

(1) Insert a blank tape (or a tape you want to record over) into the VCR and insert your recorded tape into the camcorder.
(2) Play back the recorded tape on the camcorder using the Handycam Station until you locate the point where you want to start editing, then press **II** to put the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and put the VCR in recording pause mode.
(4) Press **II** on the Handycam Station and VCR simultaneously to start editing.

To Edit More Scenes

Repeat Steps 2 to 4.

To Stop Editing

Press ☐ on both the Handycam Station and the VCR.

Use of the EDITSEARCH button

You can play back the tape in the normal/reverse direction by holding down EDITSEARCH during playback pause mode. You can also play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Inicio de la edición

Baje el volumen de la videocámara mientras edite. De lo contrario, es posible que la imagen se distorsione.

(1) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora e inserte la cinta grabada en la videocámara.
(2) Reproduzca la cinta grabada en la videocámara utilizando el interconectador hasta localizar el punto en el que desee comenzar la edición. Después presione **II** para power la videocámara en el modo de reproducción en pausa.
(3) En la videograbadora, localice el punto de inicio de la grabación y ponga la videograbadora en el modo de grabación en pausa.
(4) Presione simultáneamente **II** del interconectador y la videograbadora para comenzar la edición.

Para editar más escenas

Repita los pasos 2 a 4.

Para cesar la edición

Presione ☐ del interconectador y la videograbadora.

Empleo de la tecla EDITSEARCH

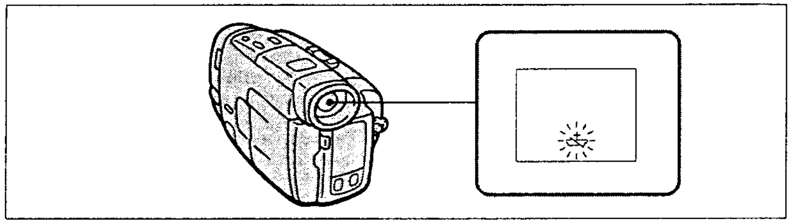
Podrá reproducir la cinta en sentido normal/regresivo manteniendo presionada EDITSEARCH durante el modo de reproducción en pausa. También podrá reproducir sucesivamente imágenes fijas a intervalos específicos presionando intermitentemente EDITSEARCH.

Changing the Lithium Battery in the Camcorder

Cambio de la pila de litio de la videocámara

Your camcorder is supplied with a lithium battery installed. The lithium battery for the camcorder lasts for about 1 year under normal operation. When the battery becomes weak or dead, the ⚡ indicator flashes in the viewfinder or on the LCD screen for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**

La videocámara se suministra con una pila de litio instalada. La pila de litio de la videocámara durará aproximadamente 1 año si se utiliza en condiciones de operación normales. Cuando la pila se debilite o agote, el indicador ⚡ parpadeará en el visor o en la pantalla LCD durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En este caso, **reemplace la pila por otra de litio CR2025 Sony. El empleo de cualquier otra pila puede suponer un riesgo de incendio o explosión.**

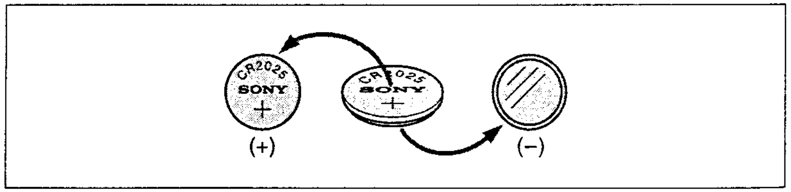


Note on Lithium Battery

The Lithium battery has a positive (+) side and a negative (–) side as illustrated. Be sure to insert the lithium battery with the positive side facing out.

Nota sobre la pila de litio

La pila de litio tiene un lado positivo (+) y otro negativo (–) como se ilustra. Asegúrese de colocar la pila con el lado positivo hacia afuera.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

AVISO

La pila de litio puede explotar si no se trata adecuadamente. No la cargue, desarme ni tire al fuego.

Precaución

Mantenga la pila de litio fuera del alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the Lithium Battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu system.

(1) Open the lid of the lithium battery compartment.

(2) Push the battery down once and pull it out from the holder.

(3) Install the lithium battery with the positive (+) side facing out. Close the lid.

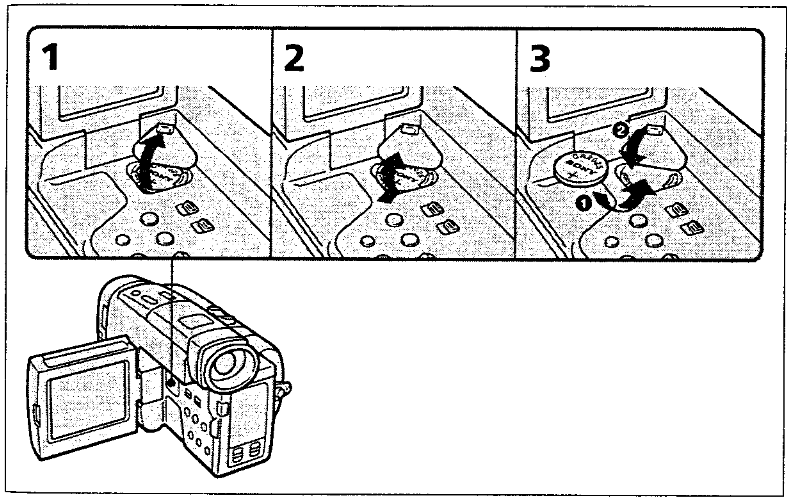
Cambio de la pila de litio

Cuando reemplace la pila, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, tendrá que volver a ajustar la fecha, la hora y otros ítemes en el sistema de menú.

(1) Abra la tapa del compartimiento de la pila de litio.

(2) Empuje una vez la pila hacia abajo y sáquela del portapila.

(3) Coloque la pila nueva con el lado positivo (+) hacia arriba. Cierre la tapa.



Resetting the Date and Time

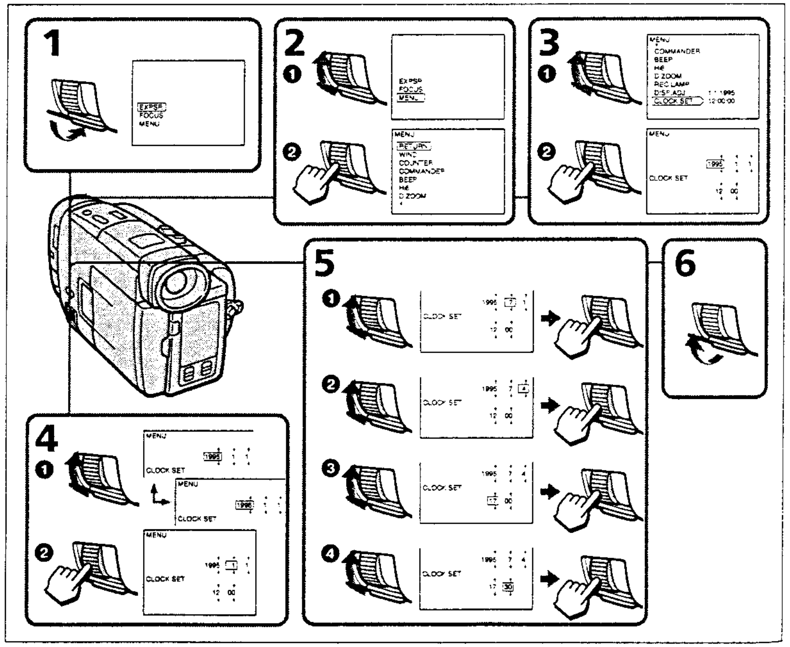
You can reset the date or time in the menu system.

(1) While the camcorder is in standby mode, open the AUTO LOCK/MENU cover to display the menu.
(2) Turn the menu dial to select MENU, then press the dial.
(3) Turn the menu dial to select CLOCK SET, then press the dial.
(4) Turn the menu dial to adjust the year, then press the dial.
(5) Set the month, day, hour and minutes by turning the dial and pressing it.
(6) Close the AUTO LOCK/MENU cover to erase the menu display.

Reajuste de la fecha y la hora

La fecha o la hora podrán reajustarse en el sistema de menú.

(1) Mientras la videocámara esté en el modo de espera, abra la cubierta AUTO LOCK/MENU para visualizar el menú.
(2) Gire el dial de menú para seleccionar MENU, después presione el dial.
(3) Gire el dial de menú para seleccionar CLOCK SET, después presione el dial.
(4) Gire el dial de menú para ajustar el año, después presione el dial.
(5) Ajuste el mes, día, hora y los minutos girando y presionando el dial.
(6) Cierre la cubierta AUTO LOCK/MENU para borrar la visualización del menú.



To Check the Preset Date and Time

Press DATE to display the date indicator. Press TIME to display the time indicator. When you press the same button again, the indicator goes off.

Note on the setting of the year

The digits of the year change as follows:

1995 ↔ 1996 ← · · · · → 2024

Para comprobar la fecha y la hora preajustadas

Presione DATE para visualizar el indicador de la fecha. Presione TIME para visualizar el indicador de la hora. Cuando presione otra vez la misma tecla, el indicador se apagará.

Nota sobre el ajuste del año

Los dígitos del año cambiarán de la forma siguiente:

1995 ↔ 1996 ← · · · · → 2024

Playback Modes

Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm systems, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape in the standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm recording system, set the Hi8 mode to OFF in the menu system before recording (p.30).

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	**Hi8**	AUTO
Standard 8	**Hi8**	OFF
	8	AUTO (or OFF)

Modos de reproducción

Selección del tipo de videocassette

Este sistema Hi8 (8 mm de alta fidelidad) se desarrolló a partir del sistema de 8 mm estándar ofreciendo mayor calidad en la imagen.
Con esta videocámara podrán utilizarse los videocassettes Hi8 y los de 8 mm estándar. Cuando desee grabar en el sistema Hi8, deberá utilizar solamente videocassettes Hi8. Un videocassette de 8 mm estándar no podrá grabarse en el sistema Hi8.
Cuando vaya a reproducir la cinta en una videograbadora de 8 mm estándar, grábela en el sistema de 8 mm estándar. Si desea utilizar un videocassette Hi8 con el sistema de grabación de 8 mm estándar, ajuste el modo Hi8 a OFF en el sistema de menú antes de grabar (pág. 30).

Para reproducir en el sistema	Grabado empleando un videocassette de tipo	Ponga el ajuste Hi8 en
Hi8	**Hi8**	AUTO
8 mm estándar	**Hi8**	OFF
	8	AUTO (u OFF)

Playback Modes

When You Play Back

The playback mode is selected automatically according to the recording system (SP/LP mode) in which the tape was recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Notes on AFM Hi-Fi Stereo

When you play back the tape, the sound is in monaural if:

- you record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- you record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

LP (long play) Mode

When you play back a tape recorded in LP mode, the LP indicator lights up on the LCD screen. This camcorder cannot record tape in LP mode.

Foreign 8 mm Video

Because the TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded software. Refer to page 69 to check the TV colour system of foreign countries.

Playing back an NTSC-recorded tape

You can play back tapes recorded in NTSC video system using the SP mode on the LCD of this camcorder. If the tape is recorded in the AFM Hi-Fi system, the AFM Hi-Fi sound is reproduced.

However, note that the following will occur during playback of an NTSC-recorded tape.

- When playing back a tape on a TV screen, you may not get the original colour depending on the TV.
- You cannot play back a tape recorded in NTSC video system with LP mode neither on the LCD nor on a TV screen.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.

Modos de reproducción

Cuando reproduzca una cinta

El modo de reproducción se seleccionará automáticamente de acuerdo con el sistema de grabación (SP/LP) en que se haya grabado la cinta. Sin embargo la calidad de la imagen grabada en el modo LP no será tan buena como en el modo SP.

Notas sobre el modo estéreo de alta fidelidad de AFM

Cuando reproduzca la cinta, el sonido será monoaural si:

- Reproduce una cinta grabada en esta videocámara en una videograbadora monoaural de alta fidelidad de AFM.
- Reproduce en esta videocámara una cinta grabada en una videograbadora monoaural de alta fidelidad de AFM.

Modo LP (larga duración)

Cuando reproduzca una cinta grabada en el modo LP, en la pantalla LCD aparecerá el indicador LP. Esta videocámara no puede grabar cintas en el modo LP.

Videocassette de 8 mm de otro sistema

Como el sistema de televisión en color varía en cada país, es posible que no pueda reproducir datos previamente grabados en otro sistema. Con respecto al sistema de televisión en color de otros países, consulte la página 69.

Reproducción de una cinta grabada con el sistema NTSC

Es posible reproducir cintas grabadas con el sistema de vídeo NTSC utilizando el modo SP en la pantalla LCD de esta videocámara. Si la cinta está grabada con el sistema de alta fidelidad de AFM, se reproducirá el sonido de alta fidelidad de AFM.

Sin embargo, tenga en cuenta que durante la reproducción de una cinta grabada con el sistema NTSC se producirá lo siguiente.

- Si reproduce una cinta en la pantalla de un televisor, es posible que no obtenga el color original según el televisor.
- No es posible reproducir una cinta grabada con el sistema NTSC en el modo LP ni en la pantalla LCD ni en una de televisión.
- Si la cinta tiene partes grabadas en los sistemas de vídeo PAL y NTSC, la indicación del contador no será correcta. La discrepancia se debe a la diferencia del ciclo de recuento de los dos sistemas de vídeo.
- La cinta grabada con el sistema NTSC no podrá editarse en otra videograbadora.

Tips for Using the Battery Pack

This section shows you how you can get the most out of your battery pack.

Preparing the Battery Pack

Always Carry Additional Batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery Life is Shorter in Cold Environment

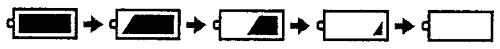
Battery efficiency is decreased and the battery will be used up more quickly if you are recording in a cold environment.

To Save Battery Power

Turn STANDBY on the camcorder down when not recording to save battery power **[a]** (p.65).
A smooth transition between scenes can be made even if recording is stopped and started again.
While you are positioning the subject, selecting an angle, looking through the viewfinder lens or at the LCD screen, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to Replace the Battery Pack

While you are using your camcorder, the remaining battery indicator in the viewfinder or on the LCD screen decreases gradually as battery power is used up.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder or on the LCD screen **[b]** (p.65).
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, slide the POWER switch to OFF on the camcorder and replace the battery pack.
Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack is replaced.

Consejos para emplear la batería

En esta sección se indica la forma de obtener el máximo rendimiento de su batería.

Preparación de la batería

Lleve siempre baterías de repuesto

Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de videofilmación planeado.

La duración de la batería se acortará en climas fríos

La eficiencia de la batería disminuirá y se consumirá con mayor rapidez si graba en climas fríos.

Ahorro de energía de la batería

Gire STANDBY de la videocámara hacia abajo cuando no grabe para ahorrar energía de la batería **[a]** (pág. 65).
Aunque detenga y reinicie la filmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Mientras posicione el motivo, seleccione un ángulo o mire a través del visor o a la pantalla LCD, el objetivo se moverá automáticamente y la batería se consumirá. La batería también se empleará cuando inserte o extraiga un videocassette.

Cuándo reemplazar la batería

Mientras emplee la videocámara, el indicador de capacidad restante de la batería en el visor o la pantalla LCD disminuirá gradualmente según se descarga la batería.

Cuando el indicador de capacidad restante de la batería alcance el punto más bajo, el indicador ▭ aparecerá y comenzará a parpadear en el visor o la pantalla LCD **[b]** (pág. 65)
Cuando el indicador ▭ del visor cambie de parpadeo lento a rápido mientras grabe, deslice el selector POWER de la videocámara hasta OFF y reemplace la batería. Deje la cinta en la videocámara para obtener una transición suave entre las escenas después de haber reemplazado la batería.

Tips for Using the Battery Pack

Consejos para emplear la batería

Notes on the Rechargeable Battery Pack

Caution

Never leave the battery pack under temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The Battery Pack Heats Up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern.

Battery Pack Care

- **Remove the battery pack from the camcorder after using the battery pack**, and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF, which shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

The Switch on the Battery Pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed **[c]** (p.65). (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)

The Life of the Battery Pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Notas sobre la batería

Precaución

Nunca deje la batería a temperaturas superiores a los 60°C, como en un automóvil aparcado al sol o bajo la luz solar directa.

La batería se calienta

Durante la carga o la grabación, la batería se calentará. Esto se debe a la energía que se genera y al cambio químico que se produce en el interior de la batería. Esto no es motivo de preocupación.

Cuidados de la batería

- **Extraiga la batería de la videocámara después de haberla empleado,** y guárdela en un lugar fresco. Cuando la batería esté instalada en la videocámara, fluirá una pequeña cantidad de corriente a pesar de que el selector POWER de la videocámara esté en OFF, lo que reducirá la duración de la batería.
- La batería se descarga continuamente, incluso cuando no se emplee después de haberla cargado. Por lo tanto, deberá cargar la batería justo antes de emplear la videocámara.

Señalador de la batería

Este señalador sirve para marcar la batería cargada. Póngalo en la posición de la "marca verde" cuando termine de cargar la batería **[c]** (pág. 65) (Cuando quite la batería del cargador, el señalador mostrará la marca verde. Cuando la extraiga de la videocámara, no aparecerá ninguna marca.)

Duración de la batería

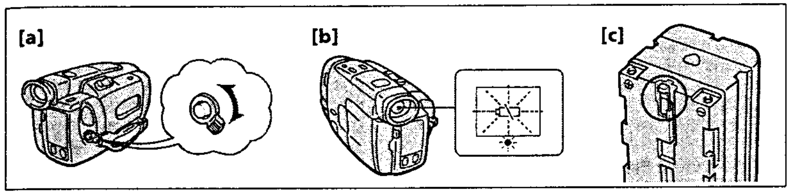
Si el indicador de estado de la batería parpadea rápidamente después de conectar la alimentación de la videocámara con una batería completamente cargada, ésta deberá reemplazarse por otra nueva completamente cargada.

Charging Temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Temperatura de carga

Las baterías deberán cargarse a temperaturas compredidas entre 10 y 30°C. A bajas temperaturas, el tiempo de carga se prolongará.



Notes on Charging

A Brand-new Battery Pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Recharge the Battery Pack Whenever You Like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the Terminals

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Be Sure to Observe the Following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

Nota sobre la carga

Batería nueva

Las baterías nuevas no están cargadas. Antes de utilizar una, cárguela por completo.

Cargue la batería cuando lo desee

No será necesario descargar la batería antes de cargarla. Si ha cargado completamente la batería pero no la emplea durante mucho tiempo, ésta se descargará. Cargue la batería antes de emplearla.

Notas sobre los terminales

Si los terminales (partes metálicas del lado posterior) no están limpios, la duración de la batería se acortará.
Cuando los terminales no estén limpios o cuando no haya empleado la batería durante mucho tiempo, instale y extraiga repetidamente la batería. Esto mejorará el contacto. Además, limpie los terminales + y – con un papel o un paño suave.

Tenga en cuenta los puntos siguientes

- Mantenga la batería alejada del fuego.
- Mantenga la batería seca.
- No abra ni modifique la batería.
- No exponga la batería a ningún golpe mecánico.

Maintenance Information and Precautions

Información sobre el mantenimiento y precauciones

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

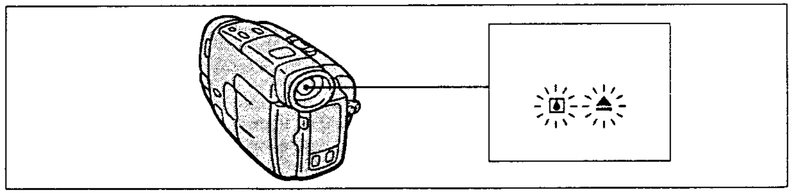
When the ▣ and ⏏ indicators flash in the viewfinder or on the LCD screen, moisture has condensed inside the camcorder.
If this happens, no other functions except for tape ejection will work.
Eject the tape, turn off the camcorder and leave it with the cassette holder open for at least one hour. The camcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo.
En estas condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Sin embargo, tome las precauciones siguientes.

En el interior de la videocámara

Cuando los indicadores ▣ y ⏏ parpadeen en el visor o en la pantalla LCD, se habrá condensado humedad en el interior de la videocámara.
En este caso, no trabajará ninguna función excepto la de expulsión del videocassette.
Expulse el videocassette, desconecte la alimentación de la videocámara y déjela con el portacassette abierto durante una hora como mínimo. La videocámara podrá volver a utilizarse si el indicador ▣ no aparece al conectar otra vez la alimentación.



On the Surface of the Tape

If there is moisture on the surface of the tape when you insert the cassette and press a tape transport button (▷, PLAY, etc.), the ⏏ indicator in the viewfinder or on the LCD screen flashes.
In this case, no other functions except for tape ejection will work.
Eject the tape, turn off the camcorder and leave it with the cassette holder open for at least one hour. The camcorder can be used again if the ⏏ indicator does not appear when you insert the cassette and press one of the tape transport buttons.

On the Lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about one hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.
(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

En la superficie de la cinta

Si hay humedad en la superficie de la cinta, cuando inserte el videocassette y presione una tecla de transporte de la cinta (▷ PLAY, etc.), en el visor o la pantalla LCD parpadeará el indicador ⏏.
En este caso, no trabajará ninguna función excepto la de expulsión del videocassette.
Expulse el videocassette, desconecte la alimentación de la videocámara y déjela con el portacassette abierto durante una hora como mínimo. La videocámara podrá volver a utilizarse cuando el indicador ⏏ no aparezca al insertar un videocassette y presionar una de las teclas de transporte de la cinta.

En el objetivo

Si se condensa humedad en el objetivo, no aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente una hora.

Cómo evitar la condensación de humedad

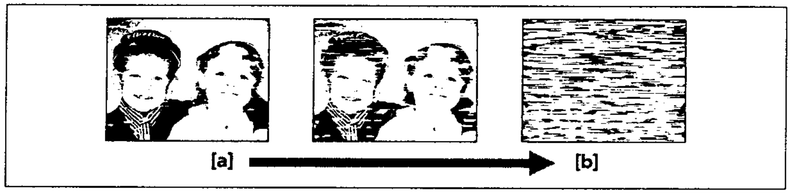
Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones de la sala durante cierto tiempo.

(1) Cierre firmemente la bolsa de plástico que contiene la videocámara.
(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la temperatura ambiental (después de 1 hora aproximadamente).

Maintenance Information and Precautions

Video Head Cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "📼 CLEANING CASSETTE" message appear one after another in the viewfinder or on the LCD screen or playback pictures are "noisy" or hardly visible, the video heads may be dirty.



[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Precautions

Camcorder Operation

- Operate the camcorder on 7.2 V (battery pack) or 6.5 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by Sony dealer before operating it any further.

Información sobre el mantenimiento y precauciones

Limpieza de las cabezas de vídeo

Para asegurar una grabación normal y unas imágenes claras, limpie las cabezas de vídeo. Cuando el indicador ⊗ y el mensaje "📼 CLEANING CASSETTE" aparezca uno después del otro en el visor o la pantalla LCD, o las imágenes de reproducción tengan ruido o apenas puedan verse, las cabezas de vídeo podrán estar sucias.

[a] Cabezas ligeramente sucias
[b] Cabezas muy sucias

Si pasa esto, limpie las cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Si después de comprobar la imagen, ésta sigue con ruido, repita la limpieza. (No repita la limpieza más de 5 veces.)

Precaución

No utilice cassettes de limpieza de tipo húmedo de venta en el comercio del ramo, ya que podrían estropear las cabezas de vídeo.

Nota

Si no puede adquirir el cassette de limpieza V8-25CLH en su zona, consulte a su centro de servicio Sony.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 7,2 V (batería), o 6,5 V (adaptador de CA).
- Para alimentarla con CC o CA, utilice solamente los accesorios recomendados en este manual.
- Si dentro de la videocámara cae algún objeto sólido o líquido, desconecte la fuente de alimentación y pida a su proveedor Sony que la revise antes de seguir empleándola.

- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- Do not push the LCD screen.
- If the camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- Constant bright points of light (red, blue, or green) may appear on the LCD screen. This is not a malfunction.
- While using the camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On Handling Tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape or if the tab is out or in.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens or the LCD screen, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

- Evite manejar la videocámara con rudeza o los choques mecánicos. Tenga mucho cuidado con el objetivo.
- Cuando no utilice la videocámara, deje el selector POWER en OFF.
- No emplee la videocámara envuelta, porque se recalentará.
- Mantenga la videocámara alejada de campos magnéticos intensos y vibraciones mecánicas.
- No empuje la pantalla LCD.
- Si utiliza la videocámara en un lugar frío, es posible que aparezca una imagen residual en la pantalla LCD. Esto no es una avería.
- En la pantalla LCD pueden aparecer puntos constantes brillantes de luz (rojo, azul o verde). Esto no es un mal funcionamiento.
- Mientras emplee la videocámara, la parte posterior de la pantalla LCD puede calentarse, pero esto no es un mal funcionamiento.

Manipulación de los videocassettes

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, o si la lengüeta está o no deslizada.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación, haga funcionar las secciones de la videocámara y el reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el objetivo con un cepillo para quitar el polvo. Si tiene huellas dactilares en el objetivo o la pantalla LCD, elimínelas con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o ligeramente humedecido en una solución muy diluida de detergente. No emplee ningún tipo de disolvente ya que podría dañar la terminación.

Maintenance Information and Precautions

AC Power Adaptor

Charging

- Use only the lithium ion type battery pack.
- Charge the battery pack on a flat surface without vibration.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from mains (the wall outlet) when not in use for a long time. To disconnect the mains lead (cord), pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged mains lead or if the unit has been dropped or damaged.
- Do not bend the mains lead forcibly, or put a heavy object on it. This will damage the mains lead and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Información sobre el mantenimiento y precauciones

Adaptador de CA

Carga

- Utilice solamente una batería de tipo iones de litio.
- Cargue la batería sobre una superfice plana y sin vibraciones.
- La batería se calentará durante la carga. Esto es normal.

Otras precauciones

- Desenchufe la unidad de la red (toma de la red) cuando no vaya a emplearla durante mucho tiempo. Para desconectar el cable de alimentación, tire del enchufe. Nunca tire del propio cable.
- No utilice la unidad con el cable de alimentación dañado o si ha dejado caer la unidad o está dañada.
- No doble a la fuerza el cable de alimentación ni ponga un objeto pesado sobre él. Esto estropeará el cable de alimentación y podrá causar un incendio o una sacudida eléctrica.
- Asegúrese de que nada metálico entre en contacto con las partes metálicas de la placa conectora. En este caso, podrá producirse un cortocircuito y la unidad podrá estropearse.
- Mantenga siempre limpios los contactos metálicos.
- No desmonte la unidad.
- Evite los golpes mecánicos y no deje caer la unidad.
- Mientras emplee la unidad, particularmente durante la carga, manténgala alejada de receptores de AM y equipos de vídeo porque puede perturbar la recepción de AM y el funcionamiento de los equipos de vídeo.
- La unidad se calentará mientras la emplee. Esto es normal.
- No deje la unidad en los lugares siguientes:
  - Extremadamente cálidos o fríos
  - Muy polvorientos o sucios
  - Muy húmedos
  - Con vibraciones

Si se produce alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using Your Camcorder Abroad

Each country has its own electric and TV colour systems. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 100 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV.
Check the following list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, Czech Republic, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Utilización de la videocámara en el extranjero

Cada país posee su propio sistema de suministro eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, verifique los puntos siguientes.

Fuentes de alimentación

Usted podrá utilizar su videocámara en cualquier país con el adaptador de CA suministrado dentro de un margen de 100 a 240 V CA, 50/60 Hz.

Diferencias en los sistemas de color

Esta videocámara se basa en el sistema PAL. Si desea ver la imagen reproducida en un televisor, éste deberá ser un televisor basado en el sistema PAL.
Compruebe la lista siguiente.

Países con el sistema PAL
Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

País con el sistema PAL M
Brasil

Países con el sistema PAL N
Argentina, Paraguay, Uruguay

Países con el sistema NTSC
Bolivia, Canadá, Centroamérica, Chile, Colombia, Corea, Ecuador, EE.UU., Islas Bahamas, Islas Filipinas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

Países con el sistema SECAM
Bulgaria, Francia, Guayana, Hungría, Irán, Iraq, Mónaco, Polonia, República de Checos, República de Eslovaquia, Rusia, Ucrania, etc.

English

Trouble Check

If you run into any problem using the camcorder, use the following table to troubleshoot the problem. Should the difficulty persist, disconnect the power source and contact your Sony dealer or local authorized Sony service facility.

Camcorder

	Symptom	Cause	Corrective Action	Page
	The power is not on.	The battery pack is not inserted.	Insert the battery pack.	8
		The battery is dead.	Use a charged battery pack.	6
		The AC power adaptor is not connected to mains.	Connect the AC power adaptor to mains.	25
	The power goes off.	While being operated in CAMERA mode, the camcorder has been in standby mode for more than 5 minutes.	Turn STANDBY down once and turn it up again.	11
		The battery is dead.	Use a charged battery pack.	6
	The battery pack is quickly discharged.	The ambient temperature is too low.	—	63
		The battery pack has not been charged fully.	Charge the battery pack again.	6
		The battery pack is completely dead, and cannot be recharged.	Use another battery pack.	64
	START/STOP does not operate.	The POWER switch is set to PLAYER.	Set it to CAMERA.	10
		The tab on the cassette is out (red).	Use a new tape or slide the tab.	9
		The tape has run out.	Rewind the tape or use a new one.	19
		The tape is stuck to the drum.	Eject the tape.	9
	The cassette cannot be removed from the holder.	The battery is dead.	Use a charged battery pack or the AC power adaptor.	6, 25
	No function except for cassette ejection works.	Moisture condensation has occurred.	Remove the cassette and leave the camcorder for at least an hour.	66
	The date or time indicator is flahsing.	You pressed DATE and TIME together for more than 2 seconds.	The camcorder is not malfunctioning. You may start recording. Flashing will stop soon.	—
		The lithium battery is dead.	Change the lithium battery.	58
	The tape does not move when a tape transport button is pressed.	The POWER switch is set to CAMERA or OFF.	Set it to PLAYER.	19
		The tape has run out.	Rewind the tape or use a new one.	19
	The autofocusing function does not work.	FOCUS is set to MANU in the menu system.	Set it to AUTO.	39
		Shooting conditions are not suitable for autofocusing operation.	Set FOCUS to MANU.	39

	Symptom	Cause	Corrective Action	Page
Operation	The STEADY SHOT function does not activate.	STEADY SHOT is set to OFF.	Set STEADY SHOT to ON.	44
		The STEADY SHOT function does not work when the wide mode is set to 16:9 FULL.	—	35
	Picture from external equipment cannot be recorded.	The camcorder has no function that records input of video signals from an external source.	This is not a malfunction.	—
Picture	The image on the viewfinder screen is not clear.	The viewfinder lens is not adjusted.	Adjust the viewfinder lens.	11
	A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	The contrast between the subject and background is too high.	The camcorder is not malfunctioning. Change location.	—
	The playback picture is not clear.	EDIT is set to ON in the menu system.	Set it to OFF.	29
	The picture is "noisy."	The video heads may be dirty.	Clean the heads using the Sony V8-25CLH cleaning cassette.	68
	The picture does not appear in the viewfinder.	The LCD panel is open.	Close the LCD panel.	14
		If the FINDER POWER SAVE switch is set to ON, the picture disappears automatically when you turn your face away from the viewfinder.	Bring your face close to the viewfinder within 1 cm (1/2 inches).	—
			Set it to OFF.	12
	The picture in the viewfinder does not disappear even the FINDER POWER SAVE switch is set to ON.	Sun light or the incandescent lamp may prevent the viewfinder sensor from working correctly. This is not malfunction.	—	—
	The picture does not appear on the LCD screen.	Incorporated fluorescent tube is worn out.	Please contact your nearest Sony dealer.	—
Others	The supplied Remote Commander does not work.	The HOLD switch is working.	Set the switch in the direction opposite to the arrow.	85
		COMMANDER is set to OFF in the menu system.	Set it to ON.	86
		Something is blocking the infrared rays.	Remove the obstacle.	—
		The battery is not inserted with the correct polarity.	Insert the battery with the correct polarity.	—
		The batteries are dead.	Insert new ones.	86

(to be continued)

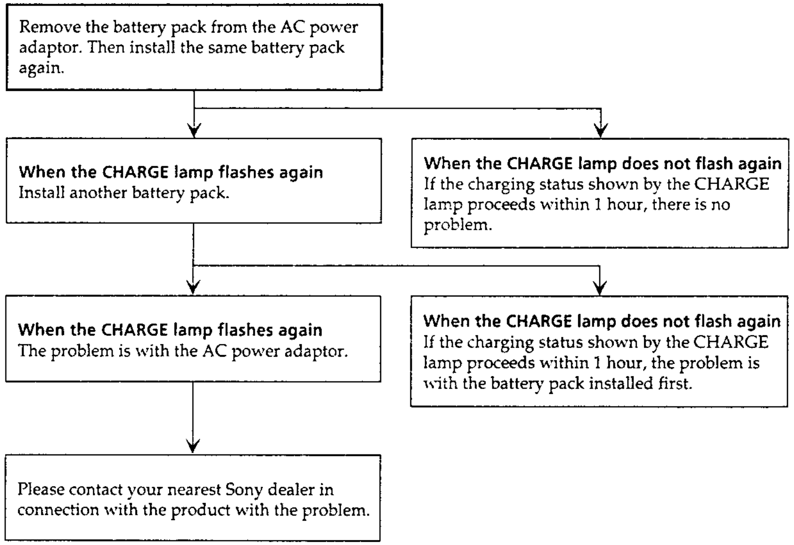
Trouble Check

AC Power Adaptor

	Symptom	Cause	Corrective Action	Page
AC Power Adaptor	The POWER lamp does not light.	—	Disconnect the mains lead. After about 1 minute, reconnect the mains lead.	6
	The CHARGE lamp flashes.	See the following chart.		

When the CHARGE Lamp Flashes

Check through the following chart.



Remove the battery pack from the AC power adaptor. Then install the same battery pack again.

When the CHARGE lamp flashes again
Install another battery pack.

When the CHARGE lamp does not flash again
If the charging status shown by the CHARGE lamp proceeds within 1 hour, there is no problem.

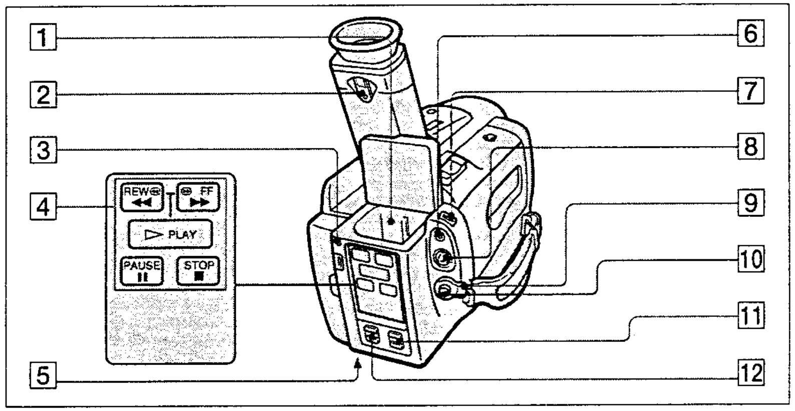
When the CHARGE lamp flashes again
The problem is with the AC power adaptor.

When the CHARGE lamp does not flash again
If the charging status shown by the CHARGE lamp proceeds within 1 hour, the problem is with the battery pack installed first.

Please contact your nearest Sony dealer in connection with the product with the problem.

Identifying the Parts

Identificación de las partes



[1] **Battery compartment** (p.8)

[2] **Viewfinder lens adjustment lever** (p.11)

[3] **Camera recording/battery lamp** (p.10)

[4] **Tape transport buttons** (p.19)
□ STOP (stop)
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fastforward)
❙❙ PAUSE (pause)

[5] **Hook for shoulder strap** (p.87)

[6] **LANC ᑕ control jack**
ᑕ stands for Local Application Control Bus System. The ᑕ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

[7] **Hook for shoulder strap** (p.87)

[8] **S VIDEO jack** (p.47)

[9] **STANDBY switch** (p.10)

[10] **START/STOP button** (p.10)

[11] **BRIGHT buttons** (p.14)

[12] **VOLUME buttons** (p.19)

[1] **Compartimiento de la batería** (pág.8)

[2] **Palanca de ajuste de la lente del visor** (pág.11)

[3] **Lámpara de videofilmación/estado de la batería** (pág.10)

[4] **Teclas de transporte de la cinta** (pág.19)
□ STOP (parada)
◀◀ REW (rebobinado)
▷ PLAY (reproducción)
▶▶ FF (avance rápido)
❙❙ PAUSE (pausa)

[5] **Gancho para la bandolera** (pág.87)

[6] **Conector de control remoto (LANC ᑕ)**
ᑕ es la abreviatura de Local Application Control Bus System (sistema de control de bus de aplicación local). El conector ᑕ se emplea para controlar el transporte de la cinta de equipos de vídeo y dispositivos periféricos conectados al mismo. Este conector tiene la misma función que los conectores con la marca CONTROL L o REMOTE.

[7] **Gancho para la bandolera** (pág.87)

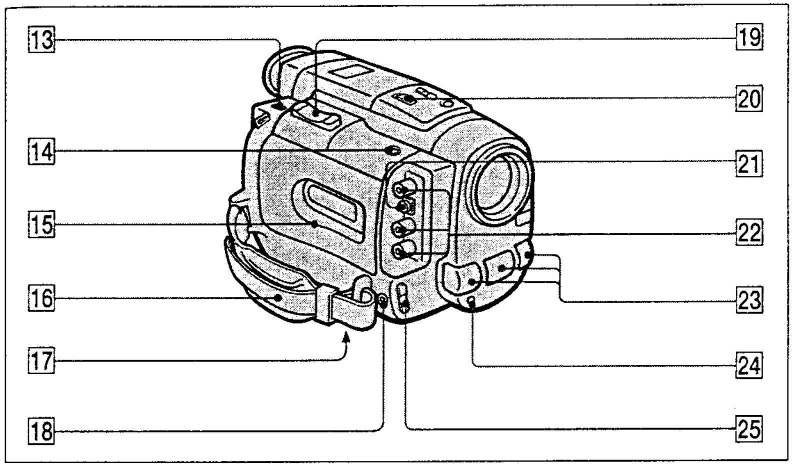
[8] **Toma de vídeo S (S VIDEO)** (pág.47)

[9] **Interruptor de espera (STANDBY)** (pág.10)

[10] **Tecla de inicio/parada (START/STOP)** (pág.10)

[11] **Teclas de ajuste de brillo (BRIGHT)** (pág.14)

[12] **Teclas de ajuste del volumen (VOLUME)** (pág.19)



[13] **BATT (Battery compartment lid release) lever** (p.8)

[14] **START/STOP button** (p.15)

[15] **Cassette compartment** (p.9)

[16] **Grip strap** (p.15)

[17] **Tripod receptacle** (p.16)

[18] **∩ (headphones) jack** (p.20)

[19] **Power zoom button** (p.12)

[20] **EJECT lever** (p.9)

[21] **RFU DC OUT (RFU adaptor DC output) jack**

[22] **VIDEO/AUDIO jacks** (p.47)

[23] **Built-in microphones**

[24] **Camera recording/battery lamp** (p.10)

[25] **Front power zoom button** (p.15)

[13] **Palanca de desbloqueo de la tapa del compartimiento de la batería (BATT)** (pág.8)

[14] **Tecla de inicio/parada (START/STOP)** (pág.15)

[15] **Compartimiento de videocassette** (pág.9)

[16] **Correa de la empuñadura** (pág.15)

[17] **Receptáculo para el trípode** (pág.16)

[18] **Toma para auriculares (∩)** (pág.20)

[19] **Tecla del zoom motorizado** (pág.12)

[20] **Palanca de expulsión (EJECT)** (pág.9)

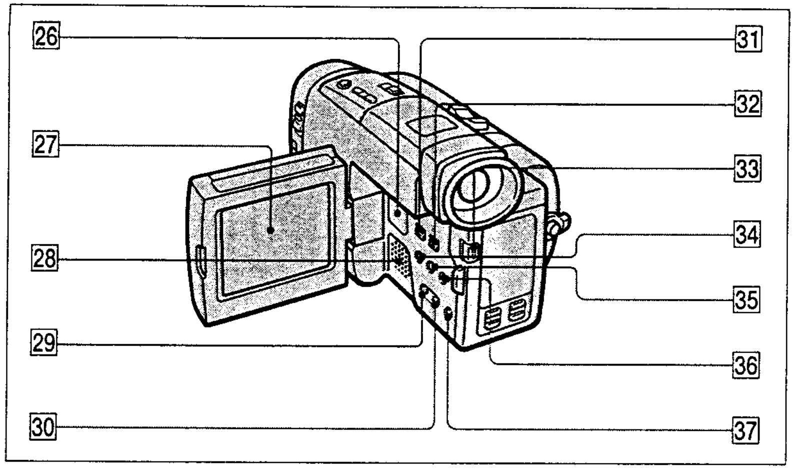
[21] **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)**

[22] **Tomas de vídeo/audio (VIDEO/AUDIO)** (pág.47)

[23] **Micrófonos incorporados**

[24] **Lámpara de videofilmación/estado de la batería** (pág.10)

[25] **Tecla del zoom motorizado frontal** (pág.15)



26 **Lithium battery compartment** (p.59)

27 **LCD screen** (p.14)

28 **Speaker**

29 **DATE button** (p.41)

30 **TIME button** (p.41)

31 **STEADY SHOT switch** (p.44)

32 **FINDER POWER SAVE switch** (p.12)

33 **PUSH OPEN button** (p.14)

34 **DISPLAY button** (p.20)

35 **END SEARCH button** (p.18)

36 **16:9 WIDE button** (p.35)

37 **COUNTER RESET button** (p.12)

26 **Compartimiento de la pila de litio** (pág.59)

27 **Pantalla LCD** (pag.14)

28 **Altavoz**

29 **Tecla de ajuste de la fecha (DATE)** (pág.41)

30 **Tecla de ajuste de la hora (TIME)** (pág.41)

31 **Conmutador de filmación estable (STEADY SHOT)** (pág.44)

32 **Conmutador de ahorro de energía del visor (FINDER POWER SAVE)** (pág.12)

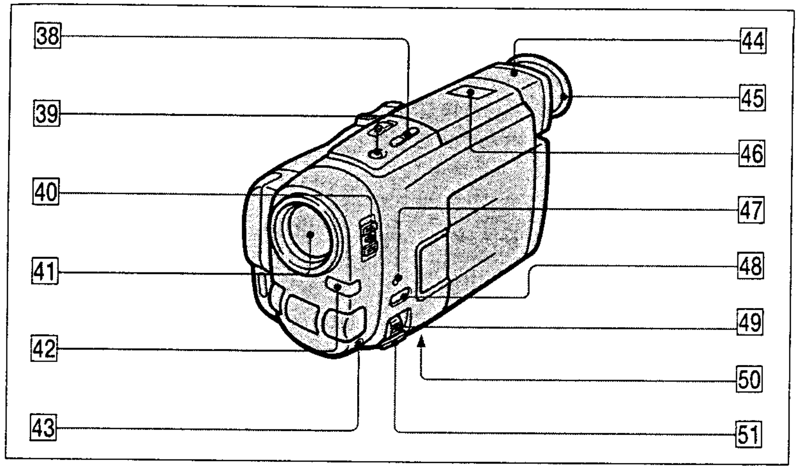
33 **Tecla de apertura (PUSH OPEN)** (pág.14)

34 **Tecla de visualización (DISPLAY)** (pág.20)

35 **Tecla de búsqueda del final de la imagen (END SEARCH)** (pág.18)

36 **Tecla de modo panorámico (16:9 WIDE)** (pág.35)

37 **Tecla de puesta a cero del contador (COUNTER RESET)** (pág.12)



38 **EDITSEARCH button** (p.17)

39 **BACK LIGHT button** (p.40)

40 **POWER switch** (p.10, 19)

41 **Lens cover**

42 **Remote sensor** (p.87)
Aim the Remote Commander here for remote control.

43 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

44 **Viewfinder** (p.11)

45 **Eyecup**

46 **Lighting aperture**

47 **Charging lamp**

48 **FADER button** (p.33)

49 **Menu dial** (p.29)

50 **Instant stand** (p.20)

51 **AUTO LOCK/MENU cover** (p.29)

38 **Tecla de búsqueda de edición (EDITSEARCH)** (pág.17)

39 **Tecla de iluminación de fondo (BACK LIGHT)** (pág.40)

40 **Selector de alimentación (POWER)** (pág.10, 19)

41 **Tapa del objetivo**

42 **Sensor remoto** (pág.87)
Apunte hacia aquí el telemando para controlar a distancia la videocámara.

43 **Toma para micrófono (MIC) alimentado a través de la clavija (PLUG IN POWER)**
Conéctele un micrófono externo (no suministrado). Esta toma también acepta un micrófono "alimentado a través de la clavija".

44 **Visor** (pág.11)

45 **Ocular**

46 **Apertura de iluminación**

47 **Lámpara de carga**

48 **Tecla de aumento gradual/desvanecimiento (FADER)** (pág.33)

49 **Dial de ajuste de menú** (pág.29)

50 **Pié** (pág.20)

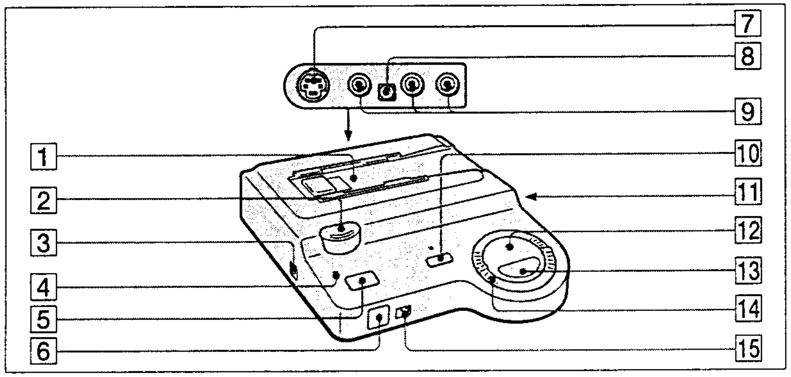
51 **Cubierta de bloqueo automático/menú (AUTO LOCK/MENU)** (pág.29)

Identifying the Parts

Identificación de las partes

Handycam Station

Interconectador



1 **Camcorder mounting surface** (p.26)

2 **RELEASE button** (p.28)

3 **LANC control jack**

4 **HANDYCAM POWER lamp** (p.27)

5 **HANDYCAM POWER switch** (p.27)

6 **Remote sensor**

7 **S VIDEO jack** (p.45)

8 **RFU DC OUT (RFU adaptor DC output) jack**

9 **VIDEO/AUDIO jacks** (p.45)

10 **II PAUSE (pause) button** (p.57)

11 **Terminal for the connecting plate** (p.26)

12 **▷ PLAY (playback) button** (p.27)

13 **■ STOP (stop) button**

14 **Shuttle ring** (p.27)

15 **COMMAND MODE selector** (p.27)

1 **Superficie de montaje de la videocámara** (pág.26)

2 **Tecla de desbloqueo (RELEASE)** (pág.28)

3 **Conector de control remoto (LANC)**

4 **Lámpara de alimentación de la videocámara (HANDYCAM POWER)** (pág.27)

5 **Interruptor de alimentación de la videocámara (HANDYCAM POWER)** (pág.27)

6 **Sensor remoto**

7 **Toma de vídeo S (S VIDEO)** (pág.45)

8 **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)**

9 **Tomas de vídeo/audio (VIDEO/AUDIO)** (pág.45)

10 **Tecla de pausa (II PAUSE)** (pág.57)

11 **Terminal para la placa conectora** (pág.26)

12 **Tecla de reproducción (▷ PLAY)** (pág.27)

13 **Tecla de parada (■ STOP)**

14 **Anillo de lanzadera** (pág.27)

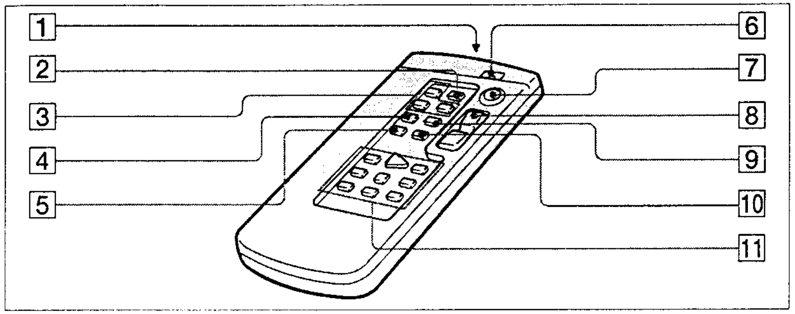
15 **Selector de modo de mando (COMMAND MODE)** (pág.27)

Remote Commander

Telemando

The buttons that have the same on the Remote Commander as on the camcorder function identically.

Las teclas del telemando con la misma marca que la videocámara tienen idéntica función.



1 **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

2 **DISPLAY button**

3 **INDEX button**
INDEX button (p.52, 53)
INDEX MARK button (p.50)
INDEX ERASE button (p.51)

4 **TIME CODE WRITE button** (p.54)

5 **COUNTER RESET button**

6 **HOLD switch**
Slide this switch in the direction of the arrow to prevent the buttons from being accidentally pressed.
Before using this Remote Commander, slide in the direction opposite to the arrow.

7 **START/STOP button**

8 **Power zoom button**

9 **DATA CODE button** (p.22)

10 **ZERO MEM button** (p.42, 48)

11 **Tape transport buttons**

1 **Transmisor**
Para controlar la videocámara con el telemando, conecte la alimentación de la videocámara y apunte este transmisor hacia el sensor remoto.

2 **Tecla de visualización (DISPLAY)**

3 **Tecla de índice (INDEX)**
Tecla de índice (INDEX) (pág.52, 53)
Tecla de marcación de señales de índice (INDEX MARK) (pág.50)
Tecla de borrado de señales de índice (INDEX ERASE) (pág.51)

4 **Tecla de escritura del código de tiempo (TIME CODE WRITE)** (pág.54)

5 **Tecla de puesta a cero del contador (COUNTER RESET)**

6 **Interruptor de bloqueo (HOLD)**
Deslícelo en el sentido de la flecha para impedir que las teclas se presionen accidentalmente.
Antes de utilizar el telemando, deslice este interruptor en el sentido opuesto al de la flecha.

7 **Tecla de inicio/parada (START/STOP)**

8 **Tecla del zoom motorizado**

9 **Tecla de código de datos (DATA CODE)** (pág.22)

10 **Tecla de memorización de cero (ZERO MEM)** (pág.42, 48)

11 **Teclas de transporte de la cinta a velocidad doble**

To prepare the Remote Commander

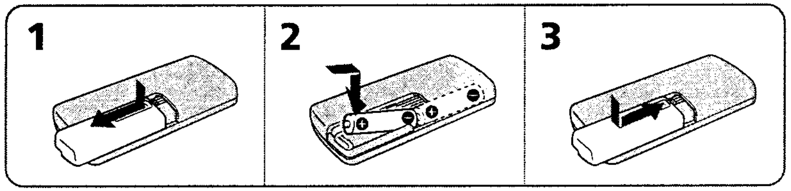
To use the Remote Commander, you must install two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Install both of the R6 (size AA) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

Preparación del telemando

Para utilizar el telemando, deberá colocar dos pilas R6 (tamaño AA). Coloque las pilas R6 (tamaño AA) suministradas.

(1) Quite la tapa del compartimiento de las pilas del telemando.
(2) Coloque las dos pilas R6 (tamaño AA) con la polaridad correcta.
(3) Cierre la tapa del compartimiento.



Note on battery life

The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

Notas sobre la duración de las pilas

Las pilas en el telemando durarán unos 6 meses si se utilizan en condiciones normales. Cuando las pilas se debiliten o agoten, el telemando no funcionará.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Remote Commander for a long time.

Para evitar daños que podría causar el derrame del electrólito de las pilas

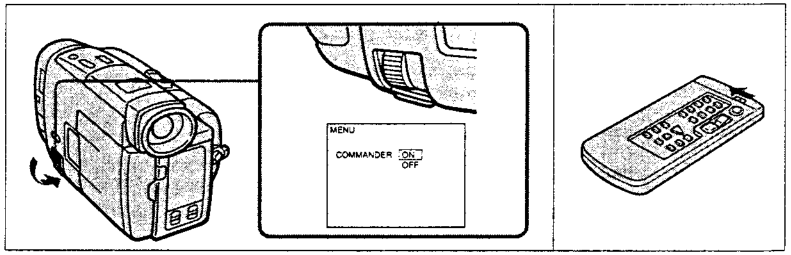
Cuando no vaya a utilizar el telemando durante mucho tiempo, extraiga las pilas.

Using the Remote Commander

Make sure that the COMMANDER mode is set to ON in the menu system on the camcorder, and that the HOLD switch on the Remote Commander is not working.

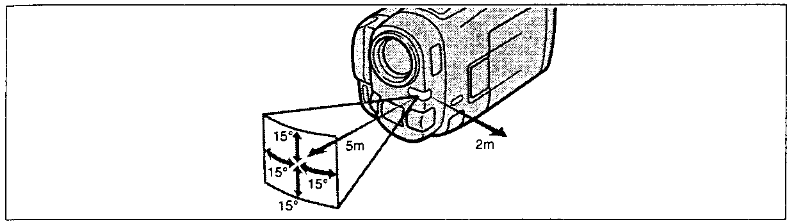
Utilización del telemando

Asegúrese de que el modo COMMANDER esté en ON en el sistema de menú de la videocámara, y de que el interruptor HOLD del telemando no esté activado.



Remote Control Direction

Área controlable mediante el telemando



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el telemando

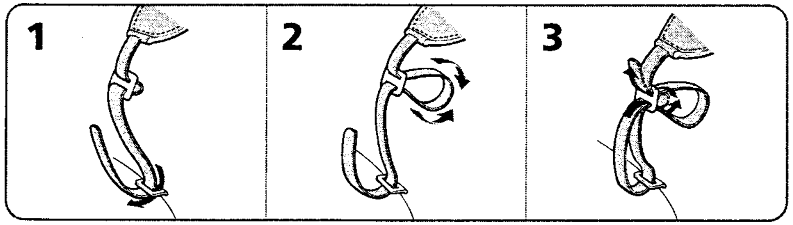
- Mantenga el sensor remoto alejado de luces intensas, como la directa del sol y otras de iluminación. De lo contrario, el telemando no funcionará adecuadamente.
- Compruebe que no haya ningún obstáculo entre el sensor remoto y el telemando.
- Esta videocámara funciona en el modo de mando VTR 2. El modo de mando (1, 2, y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una operación errónea. Si utiliza otra videograbadora Sony en el modo de mando VTR 2, se recomienda cambiar el modo de mando o cubrir el sensor remoto de la videograbadora con un papel negro.

Attaching the Shoulder Strap

Attach the supplied shoulder strap to the hooks for the shoulder strap (p.80).

Fijación de la bandolera

Fije la bandolera suministrada a los ganchos (pág.80).

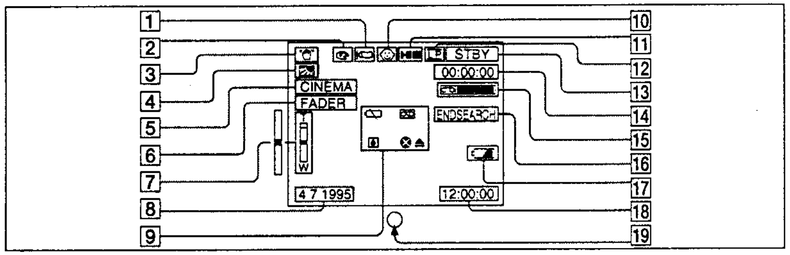


Identifying the parts

Identificación de las partes

Operation Indicators

Indicadores de operación



1 Wind indicator (p.30)

2 Manual focusing (p.39)

3 Steady shot indicator (p.44)

4 Back light indicator (p.40)

5 Wide mode indicator (p.35)

6 FADER indicator (p.33)

7 Power zoom indicator (p.12)/**Exposure indicator** (p.37)

8 Data code (p.23)

9 Warning indicators (p.89)

10 Mirror mode indicator (p.31)

11 Playing back or recording in Hi8 format

12 Lights up when playing back a tape recorded in LP mode

13 Tape transport mode

14 Tape counter (p.48)

15 Remaining tape indicator

→ → → 5min → 0min

16 ENDSEARCH indicator (p.24)

17 Remaining battery indicator (p.63)

→ → → →

18 Date or Time (p.41)

19 Recording lamp/Battery lamp (in the viewfinder)

1 Indicador de viento (pág.30)

2 Enfoque manual (pág.39)

3 Indicador de filmación estable (pág.44)

4 Indicador de iluminación de fondo (pág.40)

5 Indicador de modo panorámico (pág.35)

6 Indicador de aumento gradual/ desvanecimiento (FADER) (pág.33)

7 Indicador de zoom motorizado (pág.12)/ **exposición** (pág.37)

8 Código de datos (pág.23)

9 Indicadores de advertencia (pág.89)

10 Indicador de modo de espejo (pág.31)

11 Reproducción o grabación en el formato Hi8

12 Se encenderá cuando reproduzca una cinta grabada en el modo LP

13 Modo de transporte de la cinta

14 Contador de la cinta (pág.48)

15 Indicador de cinta remanente

→ → → 5min → 0min

16 Indicador de búsqueda del final de la imagen (ENDSEARCH) (pág.24)

17 Indicador de capacidad restante de la batería (pág.63)

→ → → →

18 Fecha u hora (pág.41)

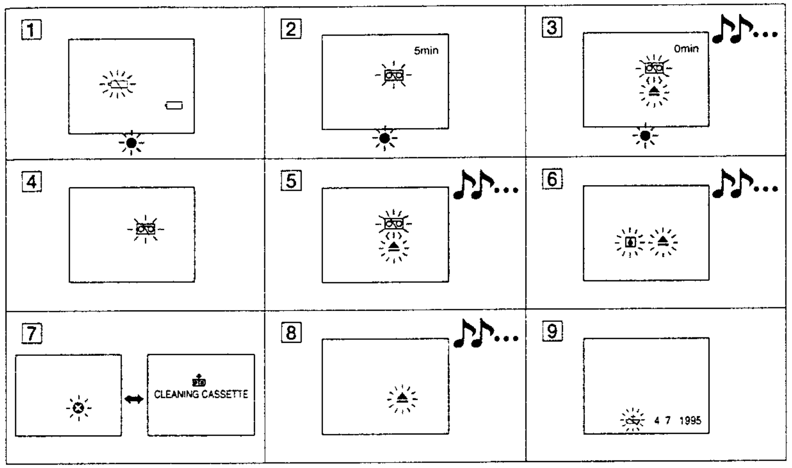
19 Lámpara de videofilmación/estado de la batería (en el visor)

Warning Indicators

Indicadores de advertencia

If indicators flash in the viewfinder or on the LCD screen, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.

Si parpadean los indicadores del visor o la pantalla LCD, compruebe lo siguiente:
♪: podrá oír un pitido cuando BEEP esté en ON.



1 The battery is weak or dead.
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 The tape is near the end.
The flashing is slow.

3 The tape has run out.
The flashing becomes rapid.

4 No tape has been inserted.

5 The tab on the tape is out (red).

6 Moisture condensation has occurred. (p.66)

7 The video heads may be contaminated. (p.68)

8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 The lithium battery is weak or is not installed. (p.58)

1 La batería está débil o completamente descargada.
Parpadeo lento: La batería está débil.
Parpadeo rápido: La batería está descargada.

2 La cinta está a punto de finalizar.
El parpadeo es lento.

3 La cinta ha llegado al final
El parpadeo es más rápido.

4 No se ha insertado una cinta.

5 La lengüeta del videocassette está al descubierto (roja).

6 Se ha producido condensación de humedad. (pág.66)

7 Las cabezas de vídeo pueden estar sucias. (pág.68)

8 Se ha producido algún otro problema.
Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o un centro de servicios local.

9 La pila de litio está débil o no ha sido instalada. (pág.58)

SECTION 2
SERVICE INFORMATION

• CHECK POINT

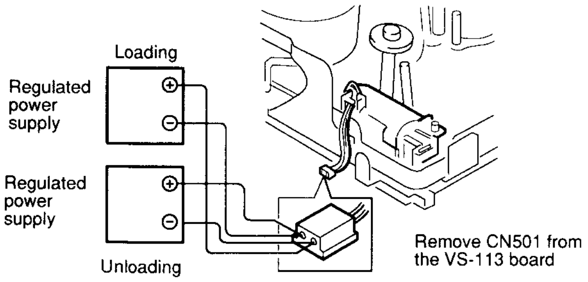
To help finding the cause of trouble, the trouble symptoms and check points are described.

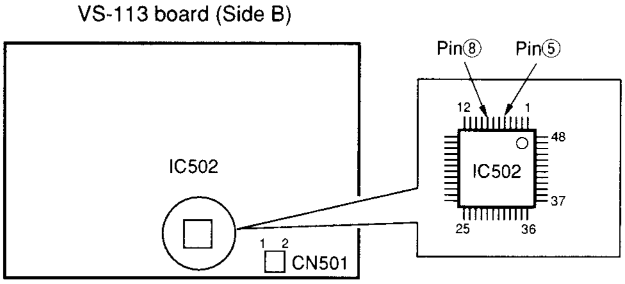
• Check points for major trouble symptoms

•Tape cannot be inserted / Tape cannot be ejected

●Check point ❶

- Check if the loading motor is defective
- Check the loading motor drive IC (IC502) pins⑤ and ⑧, or CN501 pins① and ②.


Loading
Regulated power supply
⊕
⊖
Regulated power supply
⊕
⊖
Unloading
Remove CN501 from the VS-113 board


VS-113 board (Side B)
IC502
1 2
CN501
Pin⑧
Pin⑤
12
1
48
IC502
37
25
36

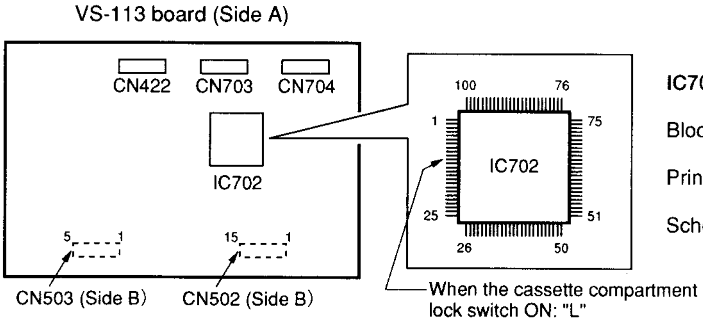
	During loading	When ejecting
IC502 pin-⑧ or CN501 pin-②	0V	5V
IC502 pin-⑤ or CN501 pin-①	5V	0V

IC502:

Block diagram	See page	4-20
Printed wiring board	See page	5-27
Schematic diagram	See page	5-48

●Check point ❷

- Check the flexible board between the MODE switch and the VS-113 board (CN503)
- Check the cassette compartment lock switch (IC702) pin⑪ or CN502 pin②.


VS-113 board (Side A)
CN422
CN703
CN704
IC702
5
1
15
1
CN503 (Side B)
CN502 (Side B)
100
76
1
75
IC702
25
51
26
50
When the cassette compartment lock switch ON: "L"

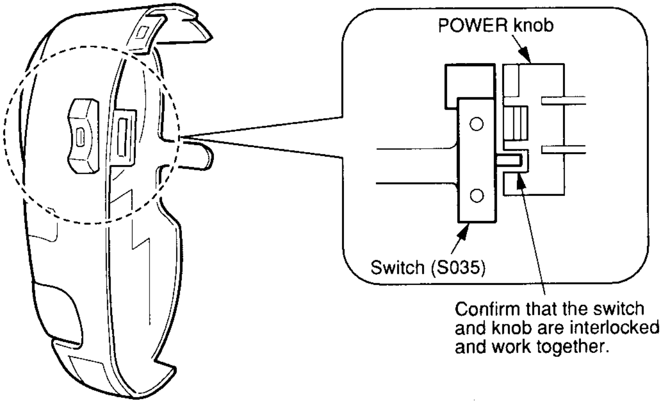
IC702:

Block diagram	See page	4-18
Printed wiring board	See page	5-26
Schematic diagram	See page	5-54

• The main power cannot be switched ON / The main power cannot be switched OFF

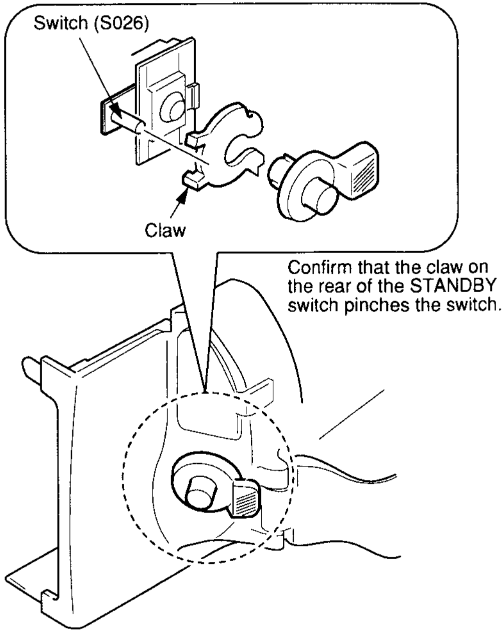
●Check point

F PANEL ASSY as viewed from the rear



Confirm that the switch and knob are interlocked and work together.

Perspective drawing as viewed from STANDBY switch



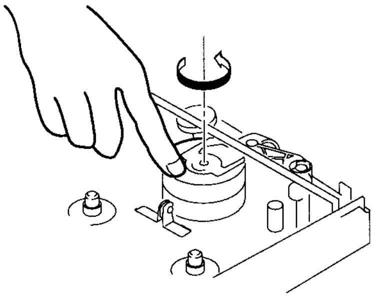
Confirm that the claw on the rear of the STANDBY switch pinches the switch.

• Drum does not rotate

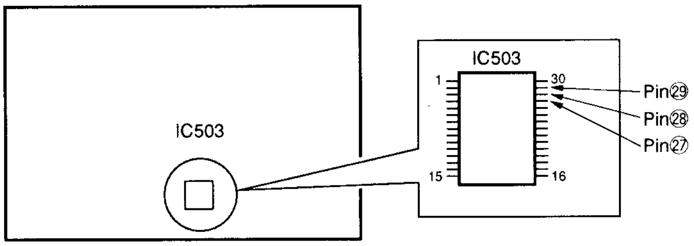
- If drum does not rotate, all mechanical operations except loading (without cassette) and eject are impossible.

●Check point

- Check that no foreign materials are left in the drum (upper/lower) assembly.
- Check the drum motor drive IC (IC503) pins ㉗、㉘、㉙



VS-113 board (Side B)



IC503 normal voltage

㉗	0.7Vdc	0 or 3 to 5 V dc when IC503 is defective
㉘	0.7Vdc	
㉙	0.7Vdc	

IC503:

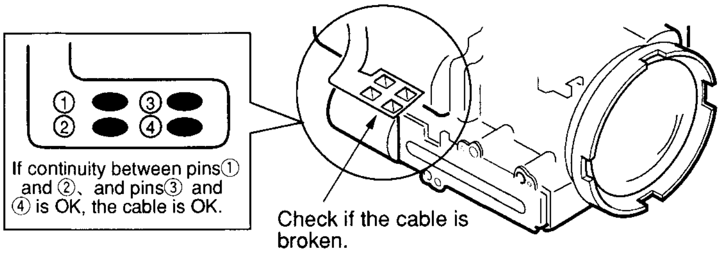
Block diagram	See page	4-22
Printed wiring board	See page	5-27
Schematic diagram	See page	5-49

• Defective focus (MANUAL focus cannot be obtained also)

- Check to see that correct focus cannot be obtained by the MANUAL focus operation also. If correct focus cannot be obtained by the MANUAL focus operation, the flange back adjustment might be defective. (See page 7-11 for flange back adjustment.)

●Check point

- Check that the focus motor cable is not broken. (If the focus motor cable is broken, focus will not change even the dial is rotated in the MANUAL focus mode.)



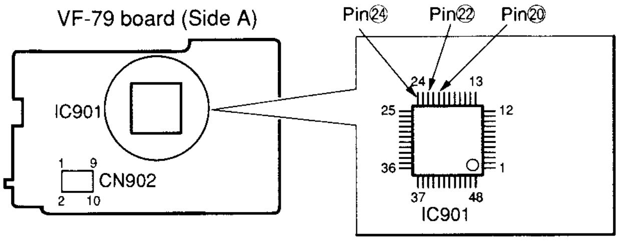
① ③
② ④
If continuity between pins① and ②、and pins③ and ④ is OK, the cable is OK.
Check if the cable is broken.

Remark: If the lens unit generates abnormal sound, or the focus vibrates, the MR sensor of the lens unit might be defective.

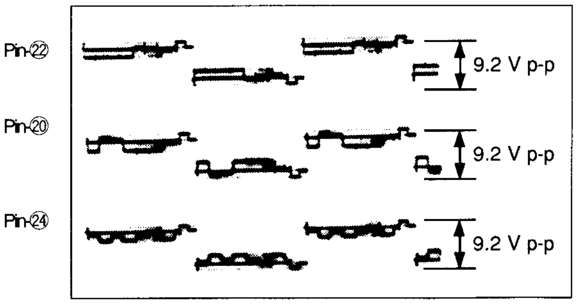
• No color on viewfinder

●Check point

- VF-79 board IC901 pins ⑳、㉒、㉔、 or CN902 pins ③、⑦、⑧



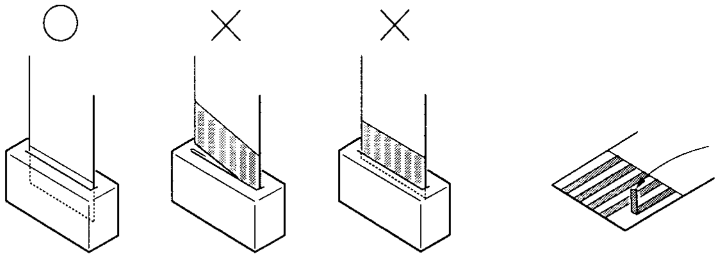
VF-79 board (Side A)
IC901
1 9
CN902
2 10
Pin㉔ Pin㉒ Pin⑳
24
13
25
12
36
1
37
48
IC901



IC901:

Block diagram	See page	4-33
Printed wiring board	See page	5-83
Schematic diagram	See page	5-81

• Be sure to confirm that the connectors are firmly inserted before and after repair work.

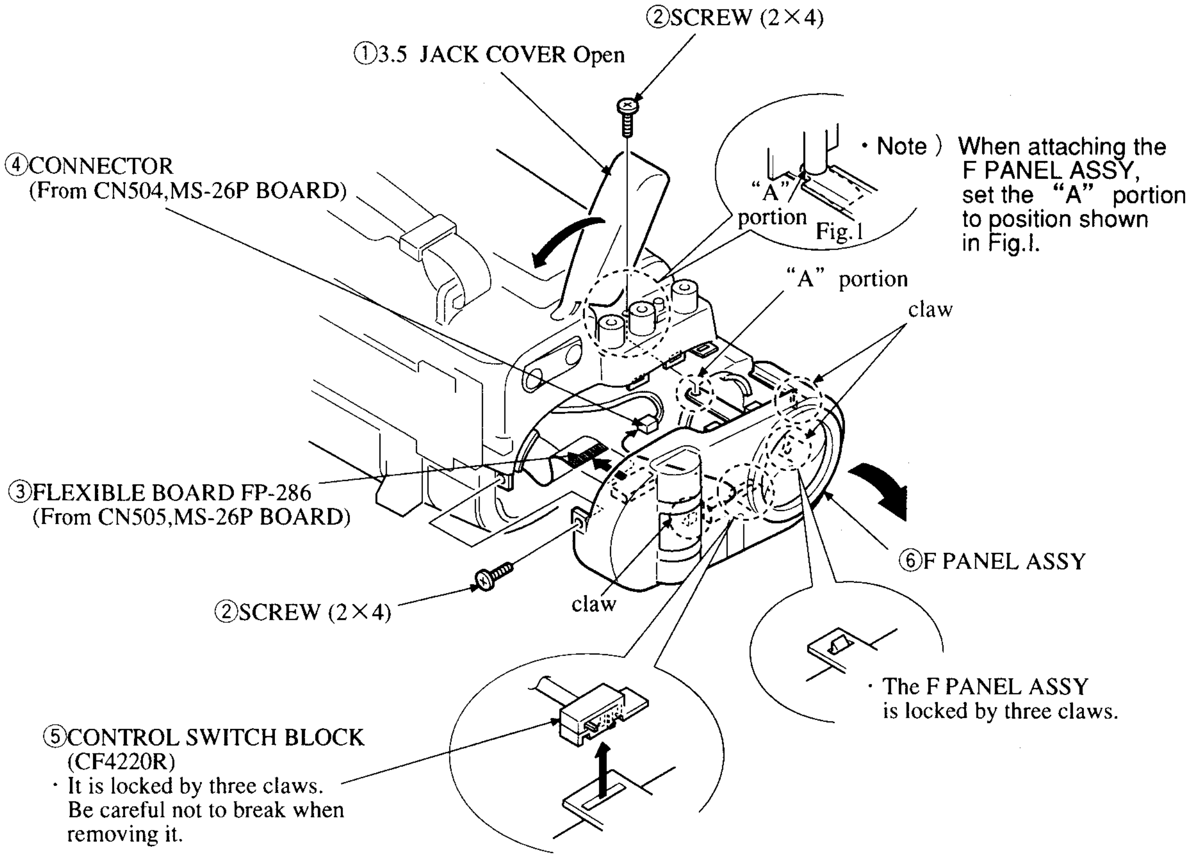


If plated solder foil pattern at the tip of a board is peeled off, cut and remove it.
(Take care that plated debris are not left in the connector.)

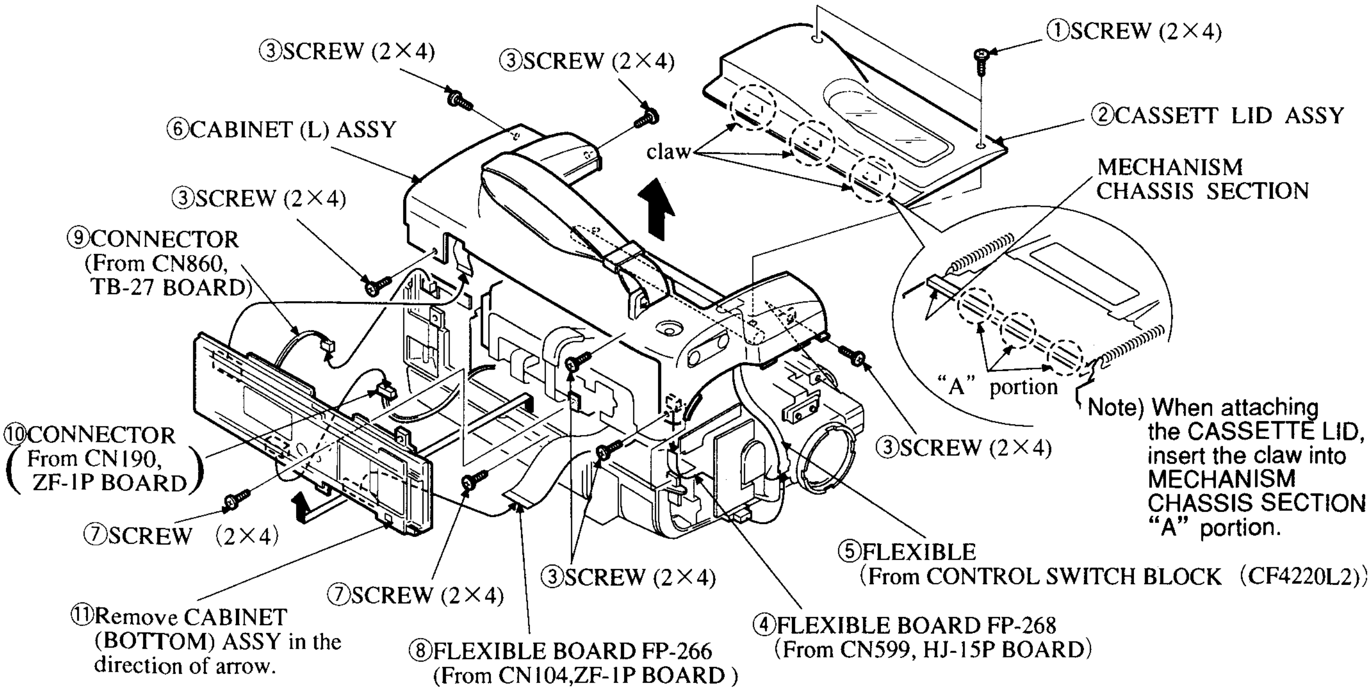
SECTION 3
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

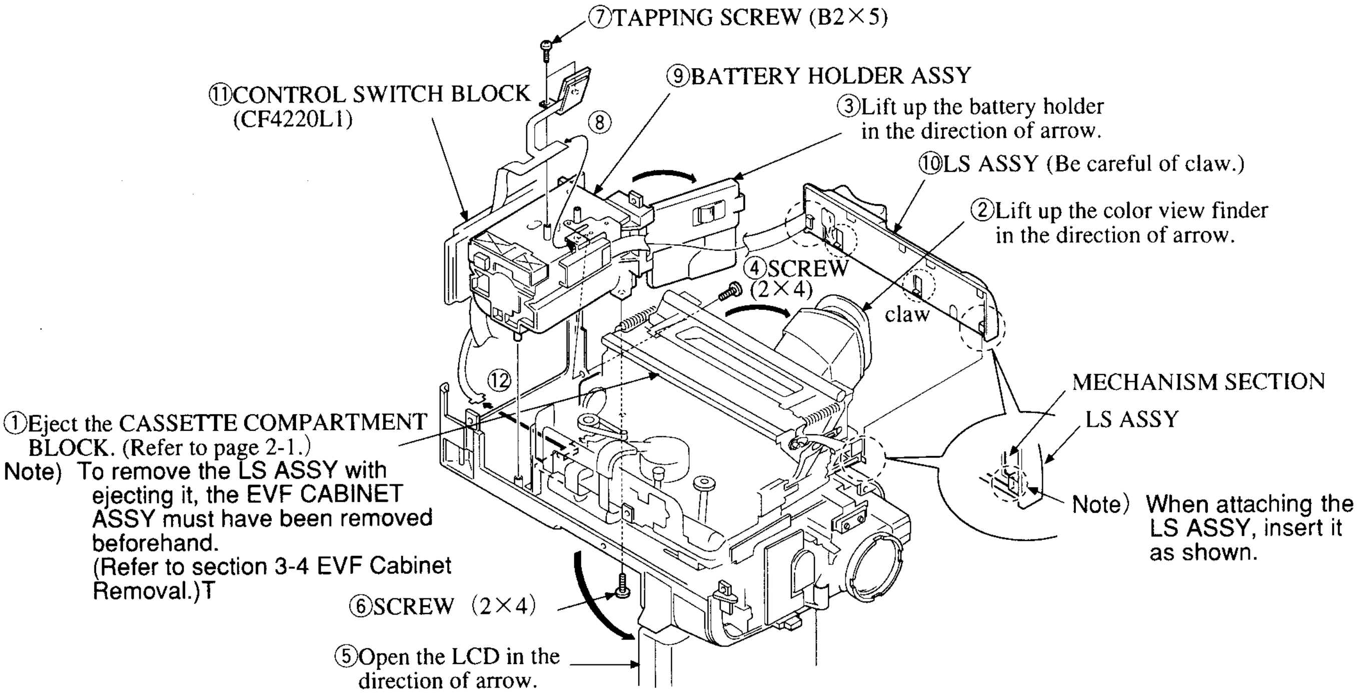
3-1. REMOVAL OF F PANEL ASSY


②SCREW (2×4)
①3.5 JACK COVER Open
④CONNECTOR
(From CN504,MS-26P BOARD)
• Note) When attaching the F PANEL ASSY, set the "A" portion to position shown in Fig.1.
"A" portion
Fig.1
"A" portion
claw
③FLEXIBLE BOARD FP-286
(From CN505,MS-26P BOARD)
⑥F PANEL ASSY
②SCREW (2×4)
claw
• The F PANEL ASSY is locked by three claws.
⑤CONTROL SWITCH BLOCK
(CF4220R)
• It is locked by three claws. Be careful not to break when removing it.

3-2. REMOVAL OF CASSETT LID, CABINET (L) AND CABINET (BOTTOM) ASSY


③SCREW (2×4)
③SCREW (2×4)
①SCREW (2×4)
⑥CABINET (L) ASSY
②CASSETT LID ASSY
claw
MECHANISM CHASSIS SECTION
③SCREW (2×4)
⑨CONNECTOR
(From CN860, TB-27 BOARD)
"A" portion
Note) When attaching the CASSETTE LID, insert the claw into MECHANISM CHASSIS SECTION "A" portion.
⑩CONNECTOR
(From CN190, ZF-1P BOARD)
③SCREW (2×4)
⑦SCREW (2×4)
⑤FLEXIBLE
(From CONTROL SWITCH BLOCK (CF4220L2))
⑦SCREW (2×4)
③SCREW (2×4)
⑪Remove CABINET (BOTTOM) ASSY in the direction of arrow.
④FLEXIBLE BOARD FP-268
(From CN599, HJ-15P BOARD)
⑧FLEXIBLE BOARD FP-266
(From CN104,ZF-1P BOARD)

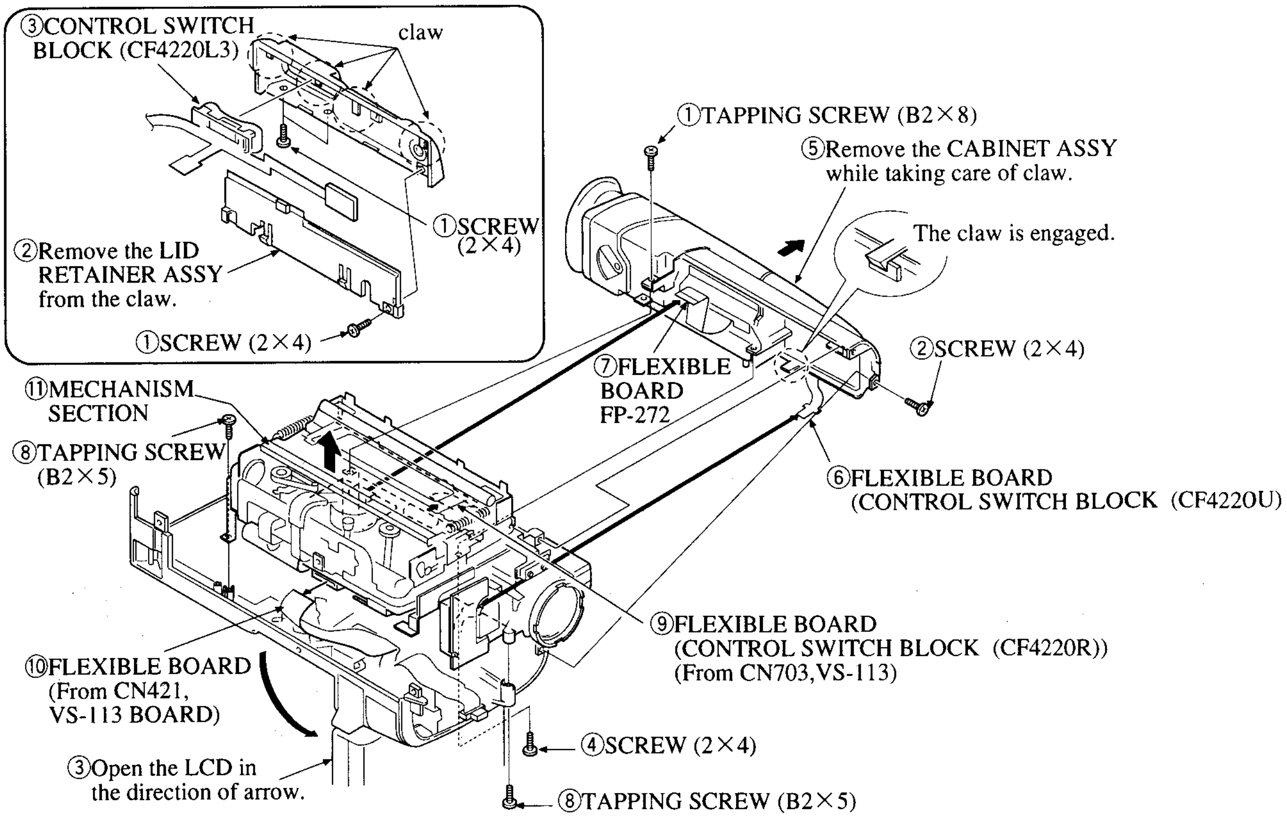
3-3. REMOVAL OF BATTERY HOLDER ASSY AND LS ASSY


⑦TAPPING SCREW (B2×5)
⑪CONTROL SWITCH BLOCK
(CF4220L1)
⑧
⑨BATTERY HOLDER ASSY
③Lift up the battery holder
in the direction of arrow.
⑩LS ASSY (Be careful of claw.)
②Lift up the color view finder
in the direction of arrow.
④SCREW
(2×4)
claw
⑫
MECHANISM SECTION
LS ASSY
①Eject the CASSETTE COMPARTMENT
BLOCK. (Refer to page 2-1.)
⑥SCREW (2×4)
⑤Open the LCD in the
direction of arrow.

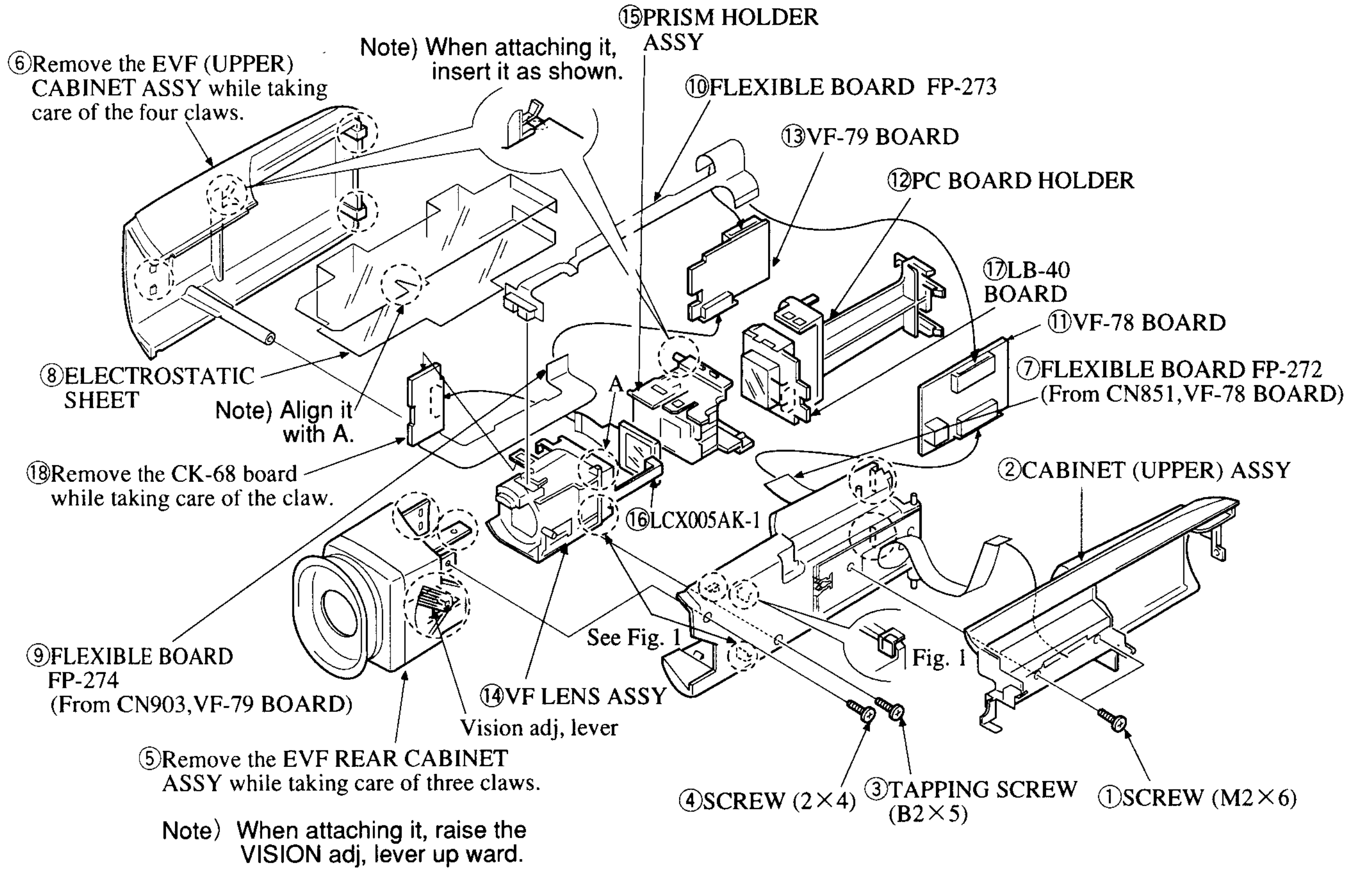
Note) To remove the LS ASSY with ejecting it, the EVF CABINET ASSY must have been removed beforehand. (Refer to section 3-4 EVF Cabinet Removal.)T

Note) When attaching the LS ASSY, insert it as shown.

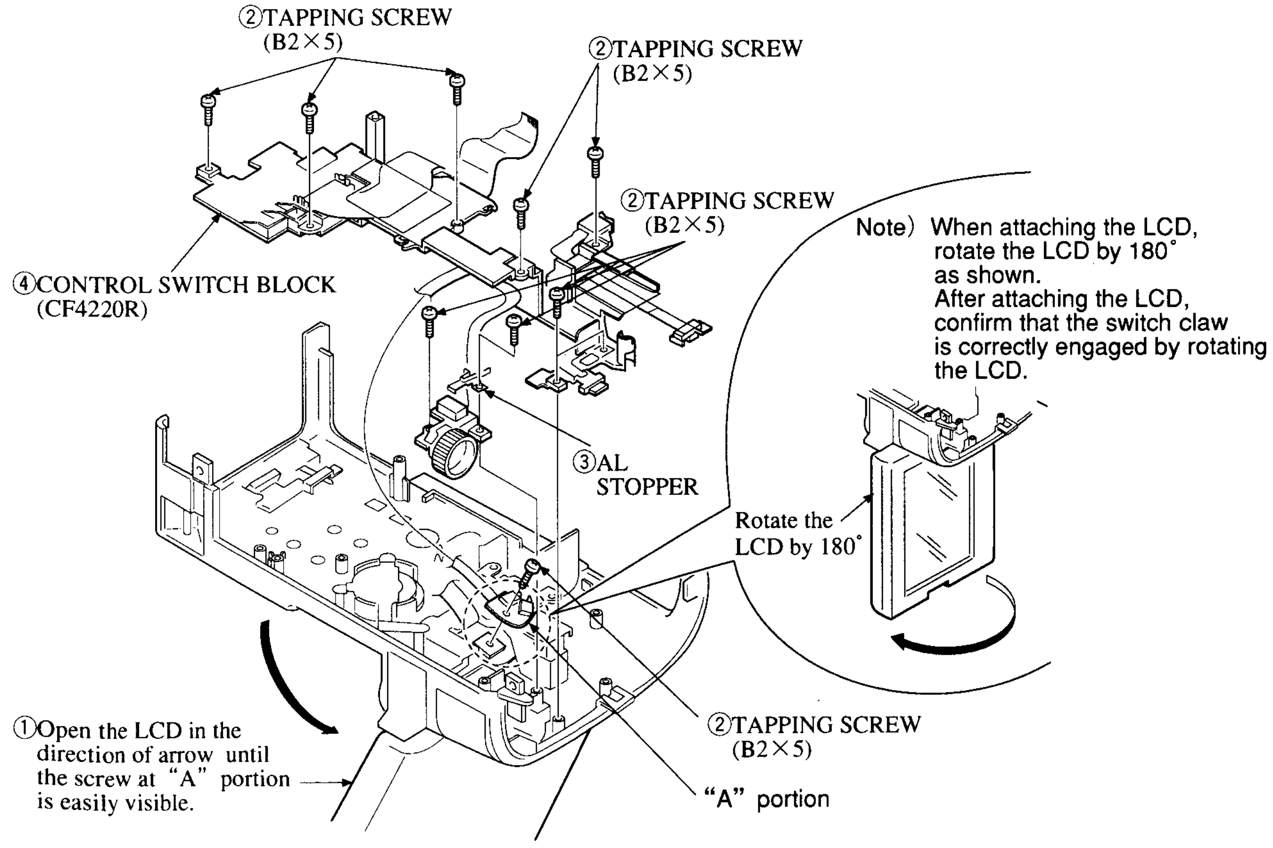
3-4. REMOVAL OF EVF CABINET ASSY, MECHANISM SECTION AND CONTROL SWITCH BLOCK (CF4220L3)


③CONTROL SWITCH
BLOCK (CF4220L3)
claw
①SCREW
(2×4)
②Remove the LID
RETAINER ASSY
from the claw.
①SCREW (2×4)
①TAPPING SCREW (B2×8)
⑤Remove the CABINET ASSY
while taking care of claw.
The claw is engaged.
②SCREW (2×4)
⑦FLEXIBLE
BOARD
FP-272
⑥FLEXIBLE BOARD
(CONTROL SWITCH BLOCK (CF4220U)
⑪MECHANISM
SECTION
⑧TAPPING SCREW
(B2×5)
⑨FLEXIBLE BOARD
(CONTROL SWITCH BLOCK (CF4220R))
(From CN703,VS-113)
⑩FLEXIBLE BOARD
(From CN421,
VS-113 BOARD)
③Open the LCD in
the direction of arrow.
④SCREW (2×4)
⑧TAPPING SCREW (B2×5)

3-5. REMOVAL OF VF-79, VF-78, LB-40, CK-68 BOARD, AND VF LENS ASSY

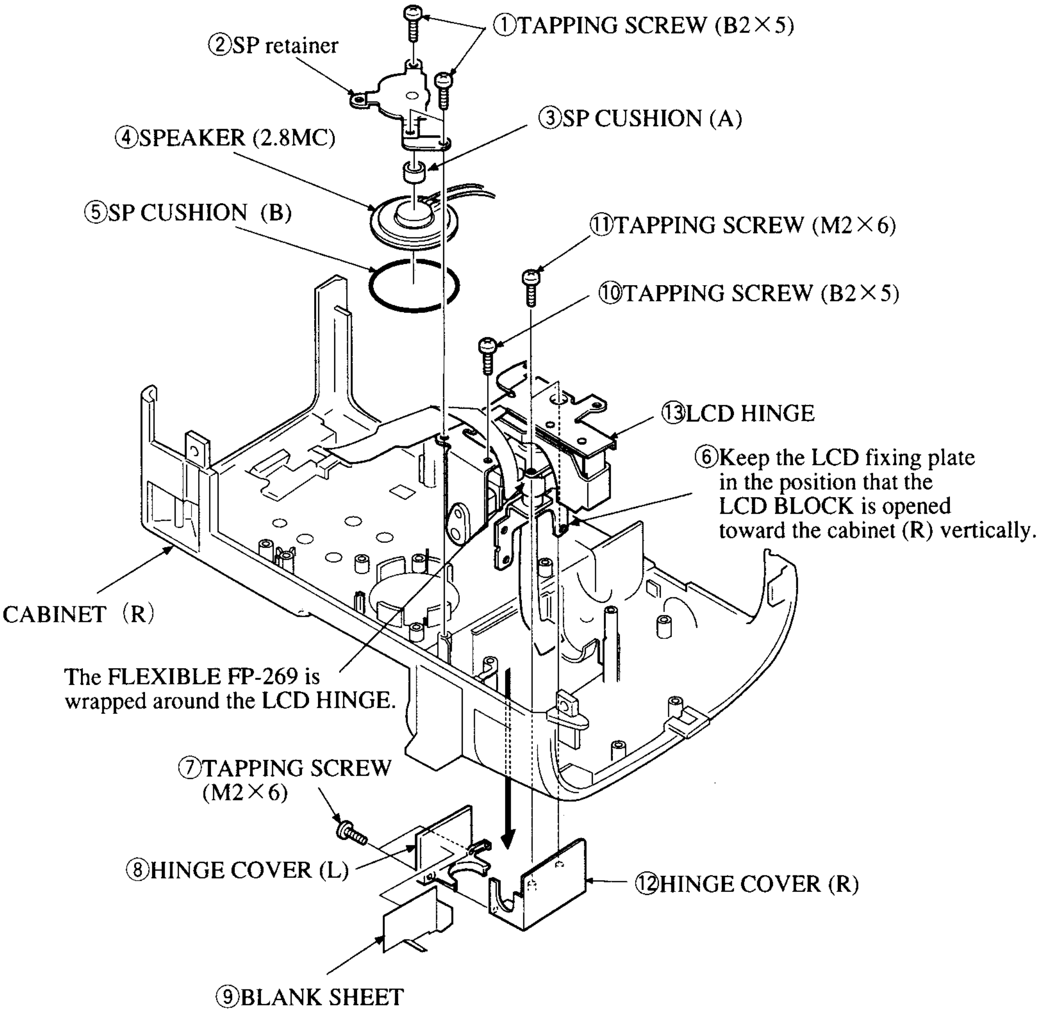

⑮PRISM HOLDER ASSY
Note) When attaching it, insert it as shown.
⑥Remove the EVF (UPPER) CABINET ASSY while taking care of the four claws.
⑩FLEXIBLE BOARD FP-273
⑬VF-79 BOARD
⑫PC BOARD HOLDER
⑰LB-40 BOARD
⑪VF-78 BOARD
⑦FLEXIBLE BOARD FP-272 (From CN851,VF-78 BOARD)
⑧ELECTROSTATIC SHEET
Note) Align it with A.
A
⑱Remove the CK-68 board while taking care of the claw.
②CABINET (UPPER) ASSY
⑯LCX005AK-1
See Fig. 1
Fig. 1
⑨FLEXIBLE BOARD FP-274 (From CN903,VF-79 BOARD)
⑭VF LENS ASSY
Vision adj, lever
⑤Remove the EVF REAR CABINET ASSY while taking care of three claws.
Note) When attaching it, raise the VISION adj, lever up ward.
④SCREW (2×4)
③TAPPING SCREW (B2×5)
①SCREW (M2×6)

3-6. REMOVAL OF CONTROL SWITCH BLOCK (CF4220R)


②TAPPING SCREW (B2×5)
②TAPPING SCREW (B2×5)
②TAPPING SCREW (B2×5)
Note) When attaching the LCD, rotate the LCD by 180° as shown. After attaching the LCD, confirm that the switch claw is correctly engaged by rotating the LCD.
④CONTROL SWITCH BLOCK (CF4220R)
③AL STOPPER
Rotate the LCD by 180°
①Open the LCD in the direction of arrow until the screw at "A" portion is easily visible.
②TAPPING SCREW (B2×5)
"A" portion

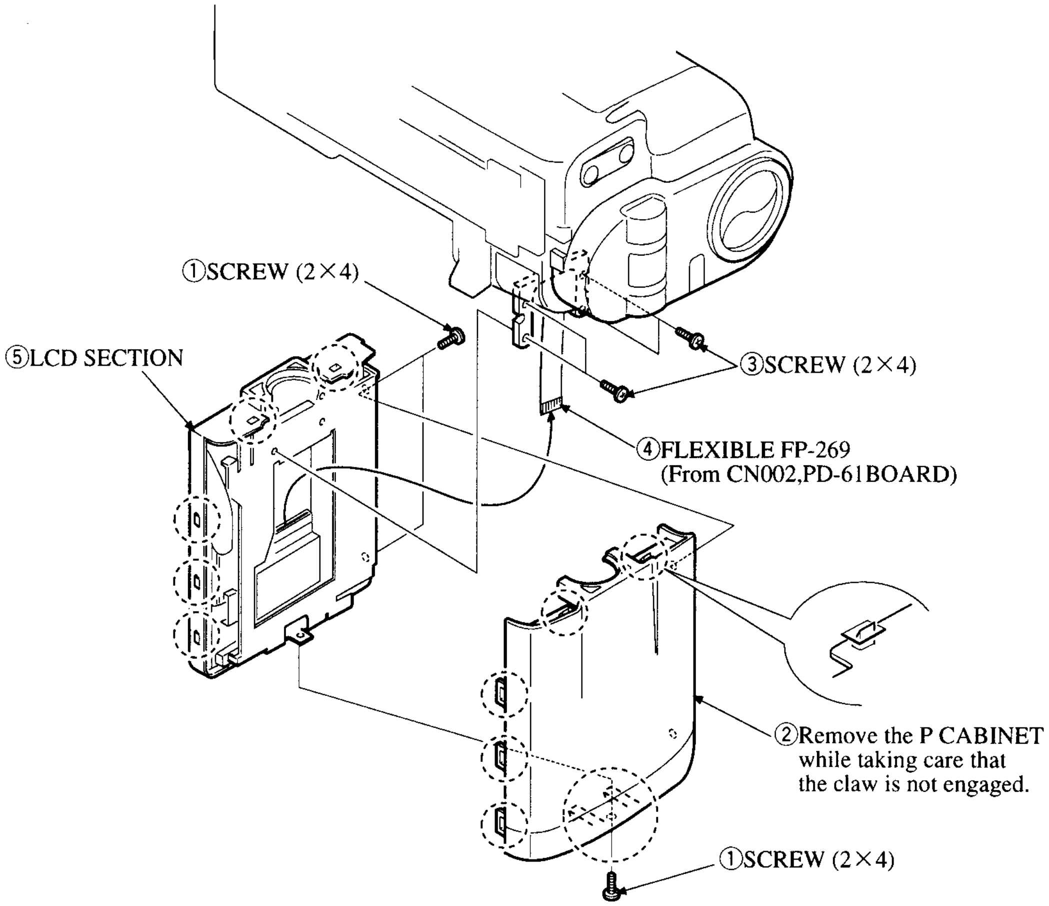
3-7. REMOVAL OF SPEAKER AND LCD HINGE

To remove the LCD hinge, the LCD section must have been removed beforehand. (Refer to page 3-5, section 3-8 LCD SECTION Removal.)

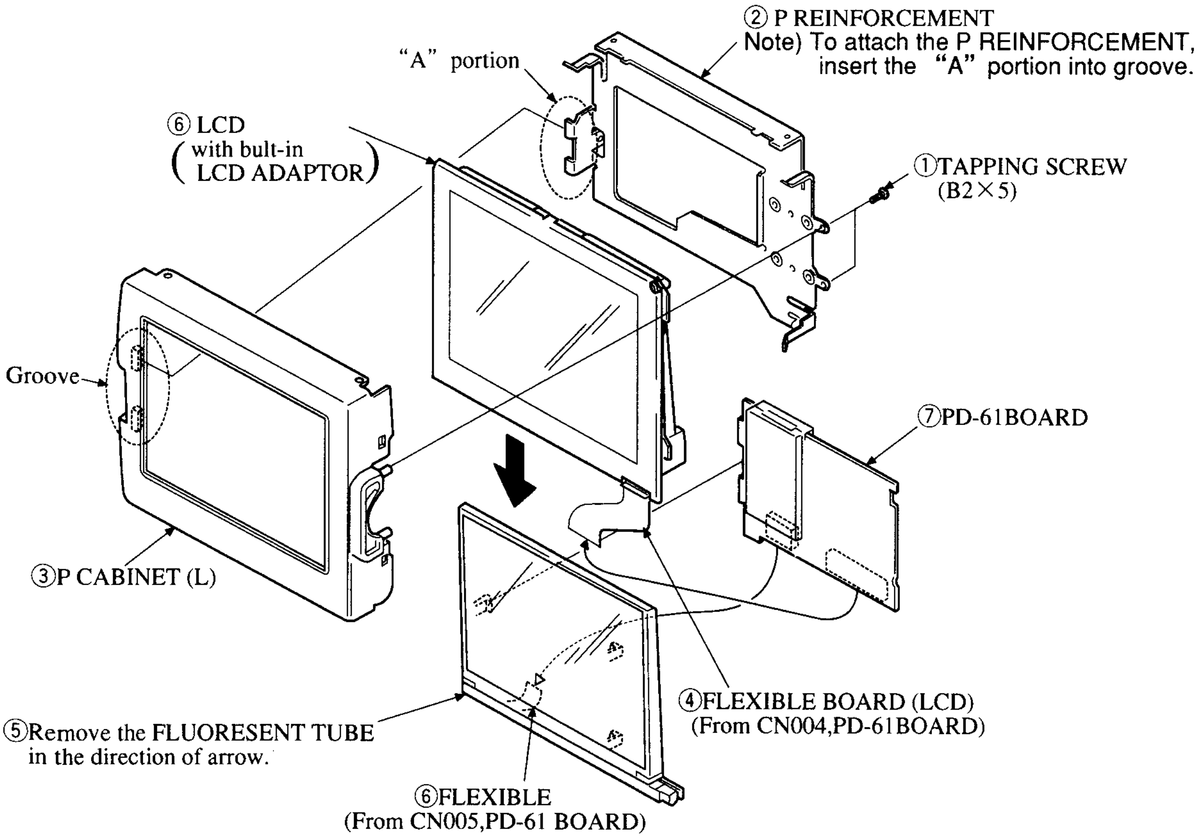


①TAPPING SCREW (B2×5)
②SP retainer
③SP CUSHION (A)
④SPEAKER (2.8MC)
⑤SP CUSHION (B)
⑪TAPPING SCREW (M2×6)
⑩TAPPING SCREW (B2×5)
⑬LCD HINGE
⑥Keep the LCD fixing plate in the position that the LCD BLOCK is opened toward the cabinet (R) vertically.
CABINET (R)
The FLEXIBLE FP-269 is wrapped around the LCD HINGE.
⑦TAPPING SCREW (M2×6)
⑧HINGE COVER (L)
⑫HINGE COVER (R)
⑨BLANK SHEET

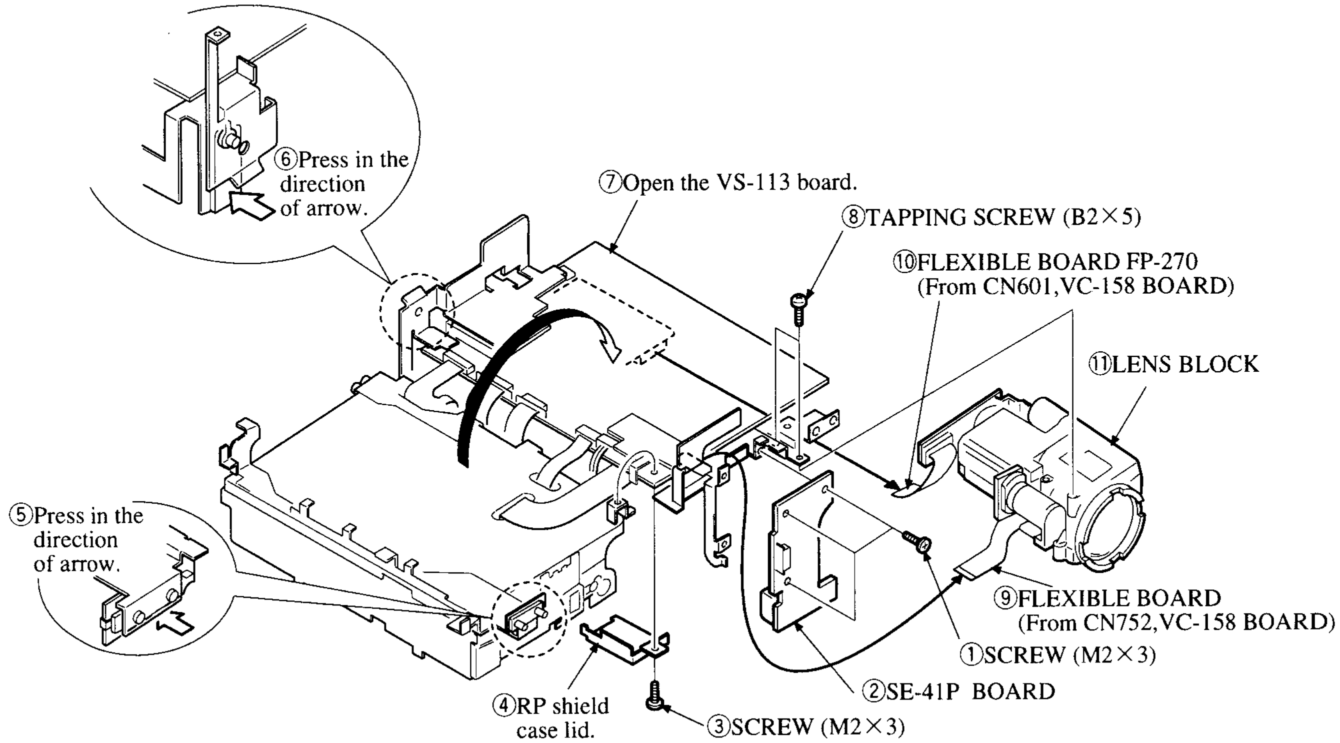
3-8. REMOVAL OF LCD SECTION


①SCREW (2×4)
⑤LCD SECTION
③SCREW (2×4)
④FLEXIBLE FP-269
(From CN002,PD-61BOARD)
②Remove the P CABINET
while taking care that
the claw is not engaged.
①SCREW (2×4)

3-9. REMOVAL OF LCD AND PD-61 BOARD

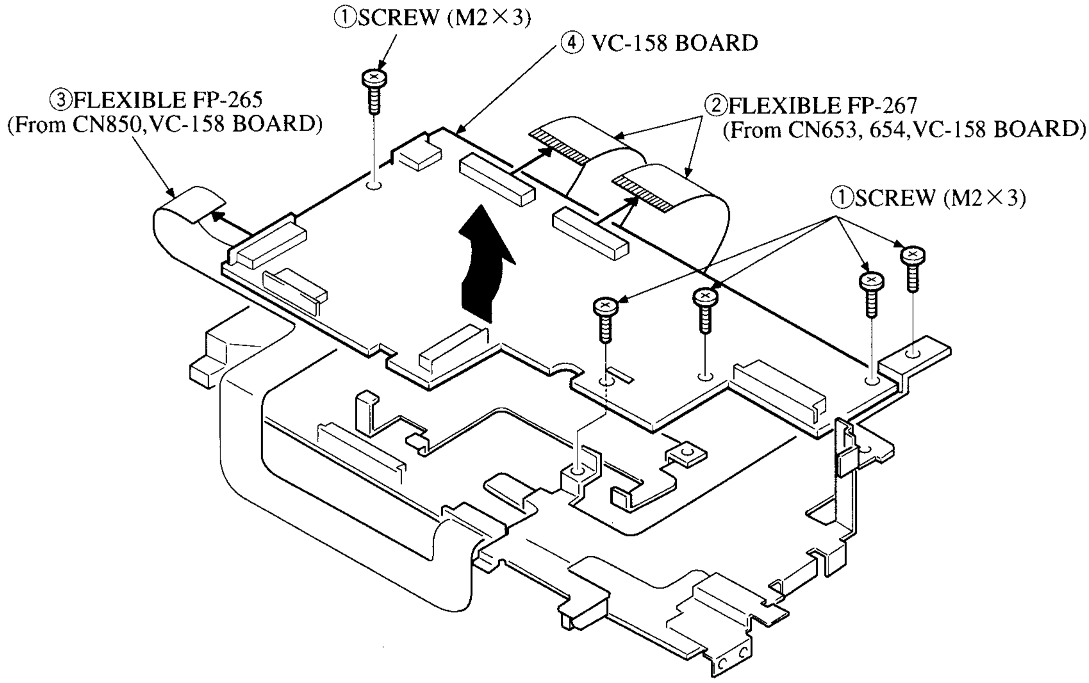

② P REINFORCEMENT
Note) To attach the P REINFORCEMENT,
insert the "A" portion into groove.
"A" portion
⑥ LCD
(with bult-in LCD ADAPTOR)
①TAPPING SCREW
(B2×5)
Groove
⑦PD-61BOARD
③P CABINET (L)
④FLEXIBLE BOARD (LCD)
(From CN004,PD-61BOARD)
⑤Remove the FLUORESENT TUBE
in the direction of arrow.
⑥FLEXIBLE
(From CN005,PD-61 BOARD)

3-10. REMOVAL OF SE-41P BOARD AND LENS BLOCK



⑥Press in the direction of arrow.
⑦Open the VS-113 board.
⑧TAPPING SCREW (B2×5)
⑩FLEXIBLE BOARD FP-270 (From CN601,VC-158 BOARD)
⑪LENS BLOCK
⑤Press in the direction of arrow.
⑨FLEXIBLE BOARD (From CN752,VC-158 BOARD)
①SCREW (M2×3)
②SE-41P BOARD
④RP shield case lid.
③SCREW (M2×3)

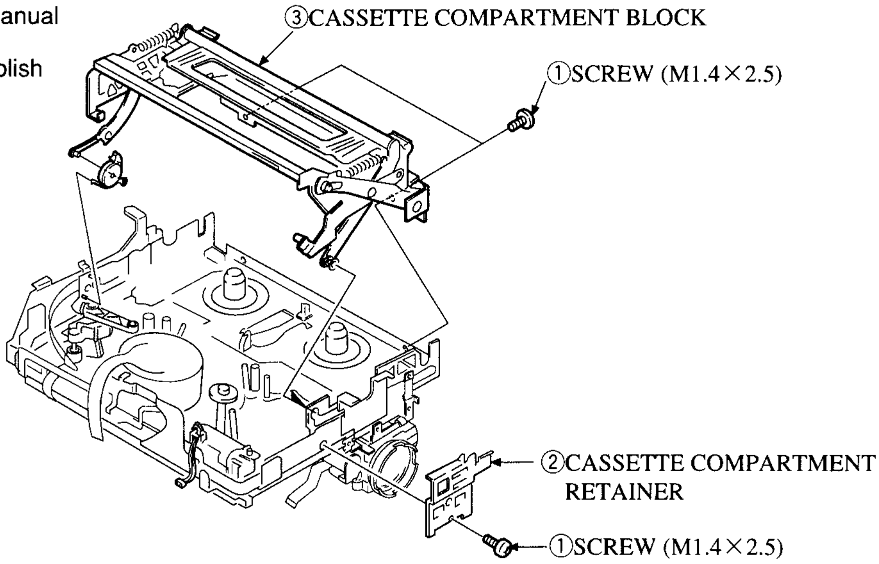
3-11. REMOVAL OF VC-158 BOARD



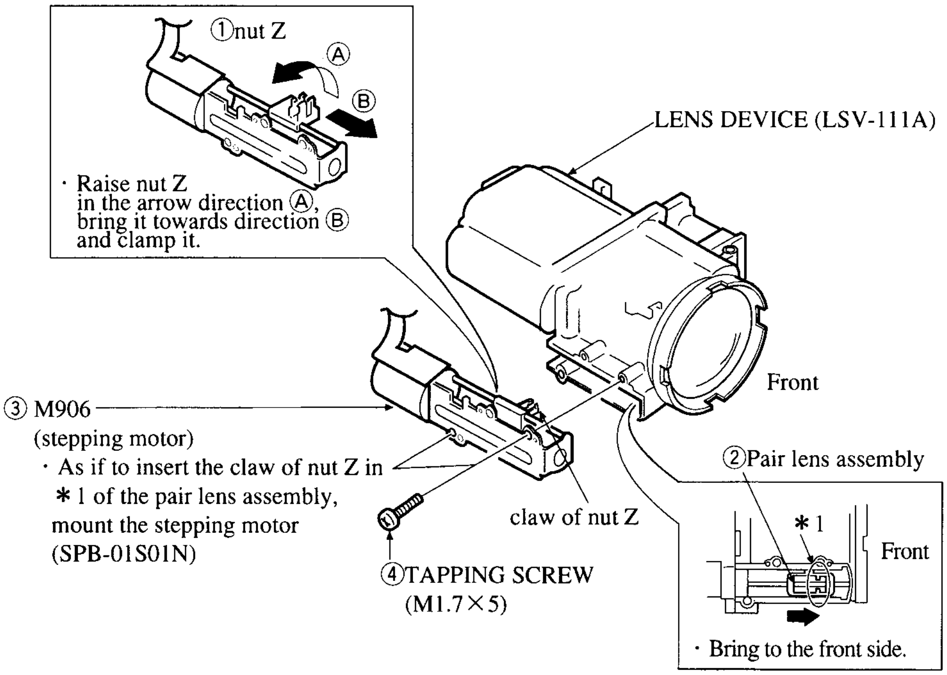
①SCREW (M2×3)
④ VC-158 BOARD
③FLEXIBLE FP-265 (From CN850,VC-158 BOARD)
②FLEXIBLE FP-267 (From CN653, 654,VC-158 BOARD)
①SCREW (M2×3)

3-12. REMOVAL OF CASSETTE COMPARTMENT BLOCK

- Establish the USE mode first. Refer to separate " 8mm Video Mechanism adjustment manual VI TK Mechanism " 9-973-446-11 how to establish the USE mode.


③CASSETTE COMPARTMENT BLOCK
①SCREW (M1.4×2.5)
②CASSETTE COMPARTMENT RETAINER
①SCREW (M1.4×2.5)

3-13. MOUNTING OF M906 STEPING MOTOR (SPB-01S01N) (ZOOM)

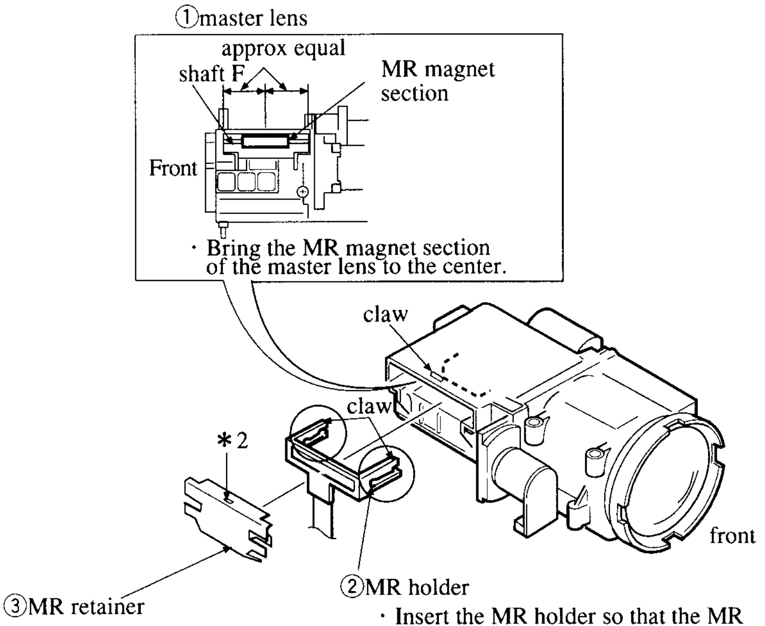

①nut Z
Ⓐ
Ⓑ
LENS DEVICE (LSV-111A)
Front
③ M906
claw of nut Z
②Pair lens assembly
＊1
Front
④TAPPING SCREW (M1.7×5)

- Raise nut Z in the arrow direction Ⓐ, bring it towards direction Ⓑ and clamp it.

③ M906 (stepping motor)
- As if to insert the claw of nut Z in ＊1 of the pair lens assembly, mount the stepping motor (SPB-01S01N)

- Bring to the front side.

3-14. MOUNTING OF MR SENSOR SECTION


①master lens
approx equal
shaft F
MR magnet section
Front
claw
claw
＊2
front
③MR retainer
②MR holder

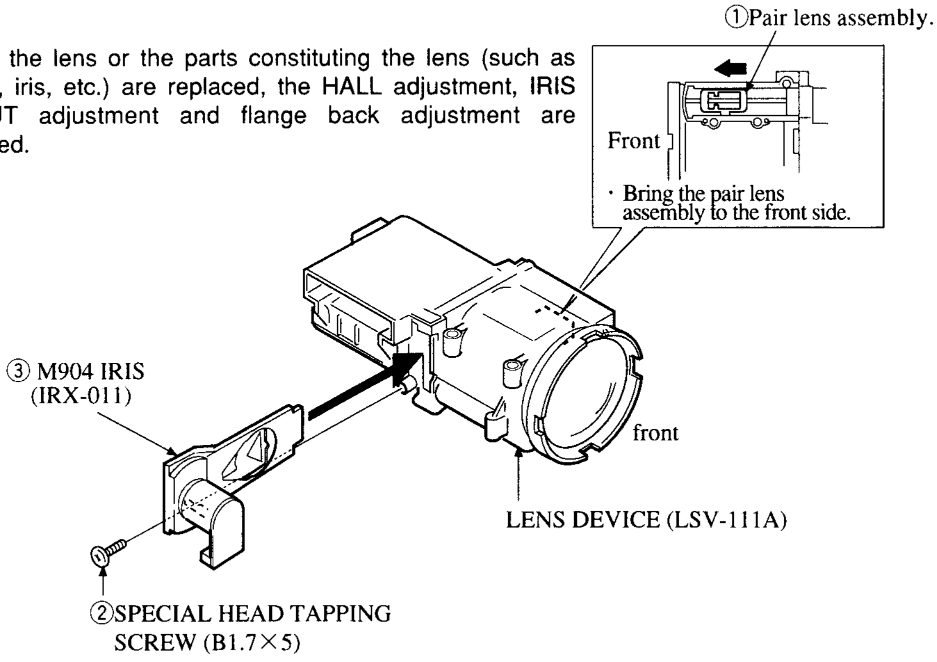
- Bring the MR magnet section of the master lens to the center.

③MR retainer
- Insert claw into ＊2 unit it sounds click.

②MR holder
- Insert the MR holder so that the MR magnet section fits between the claws. Insert the claw of the MR holder in the shaft F as well.

3-15. MOUNTING OF M904 IRIS (IRX-011)

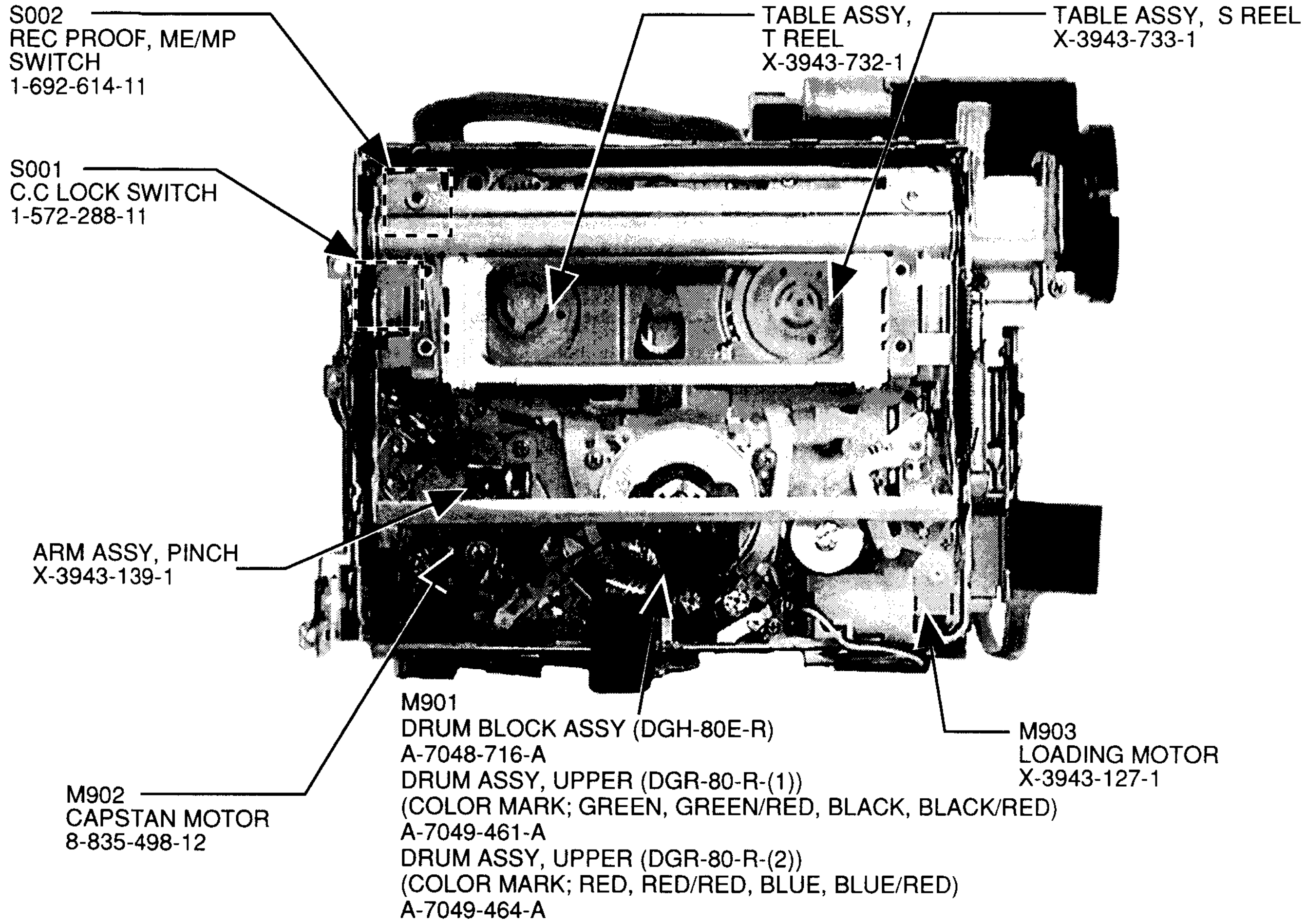
Note) When the lens or the parts constituting the lens (such as motor, iris, etc.) are replaced, the HALL adjustment, IRIS IN/OUT adjustment and flange back adjustment are required.


①Pair lens assembly.
Front
③ M904 IRIS (IRX-011)
front
LENS DEVICE (LSV-111A)
②SPECIAL HEAD TAPPING SCREW (B1.7×5)

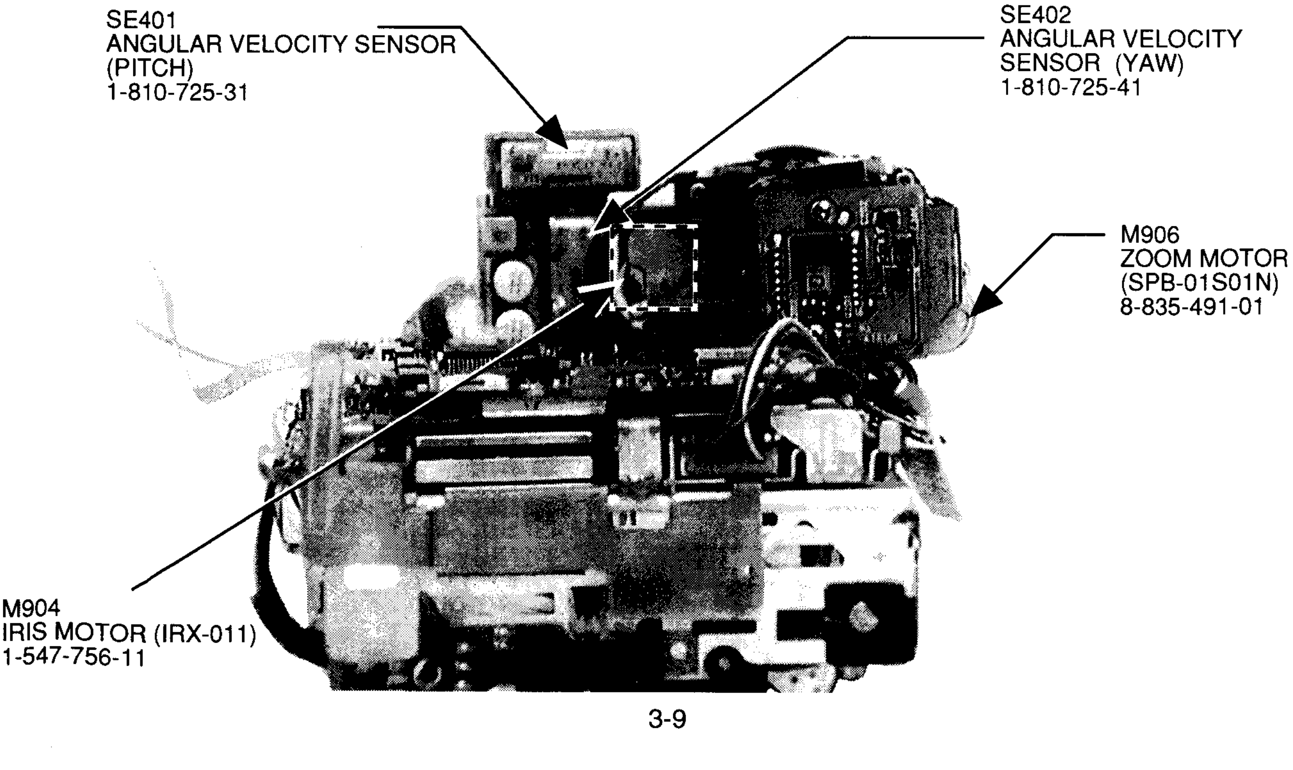
- Bring the pair lens assembly to the front side.

3-16. INTERNAL VIEWS

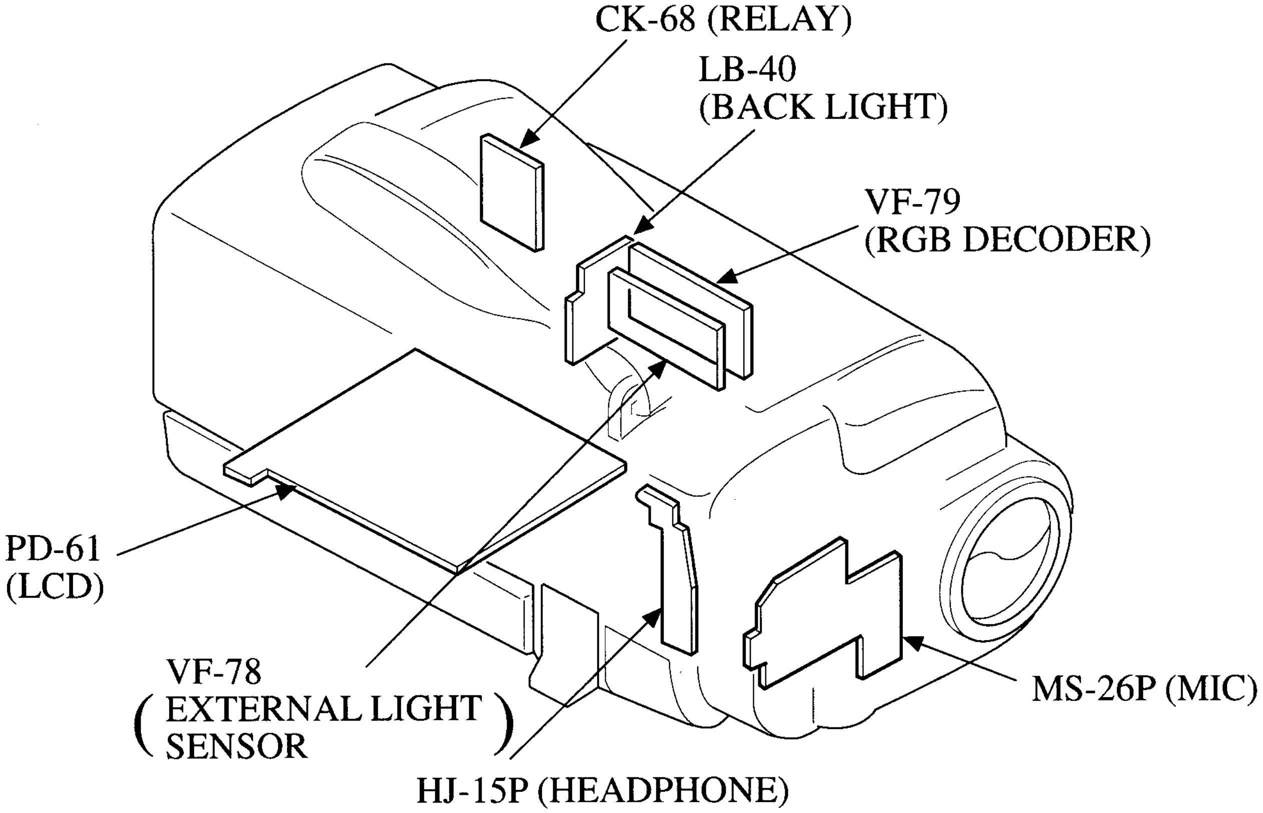
-FRONT SIDE-

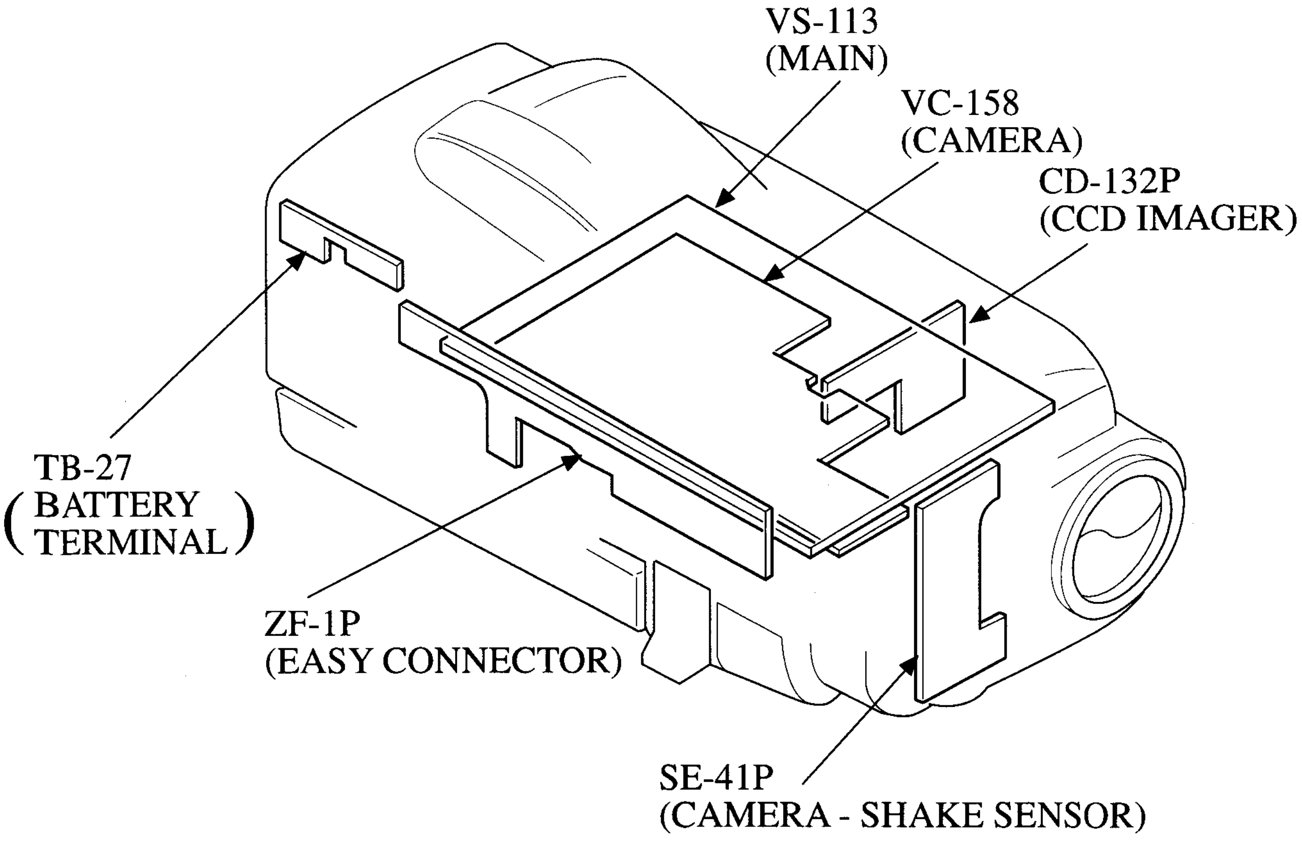

S002
REC PROOF, ME/MP SWITCH
1-692-614-11
TABLE ASSY, T REEL
X-3943-732-1
TABLE ASSY, S REEL
X-3943-733-1
S001
C.C LOCK SWITCH
1-572-288-11
ARM ASSY, PINCH
X-3943-139-1
M901
DRUM BLOCK ASSY (DGH-80E-R)
A-7048-716-A
DRUM ASSY, UPPER (DGR-80-R-(1))
(COLOR MARK; GREEN, GREEN/RED, BLACK, BLACK/RED)
A-7049-461-A
DRUM ASSY, UPPER (DGR-80-R-(2))
(COLOR MARK; RED, RED/RED, BLUE, BLUE/RED)
A-7049-464-A
M903
LOADING MOTOR
X-3943-127-1
M902
CAPSTAN MOTOR
8-835-498-12

-REAR SIDE-


SE401
ANGULAR VELOCITY SENSOR (PITCH)
1-810-725-31
SE402
ANGULAR VELOCITY SENSOR (YAW)
1-810-725-41
M906
ZOOM MOTOR (SPB-01S01N)
8-835-491-01
M904
IRIS MOTOR (IRX-011)
1-547-756-11

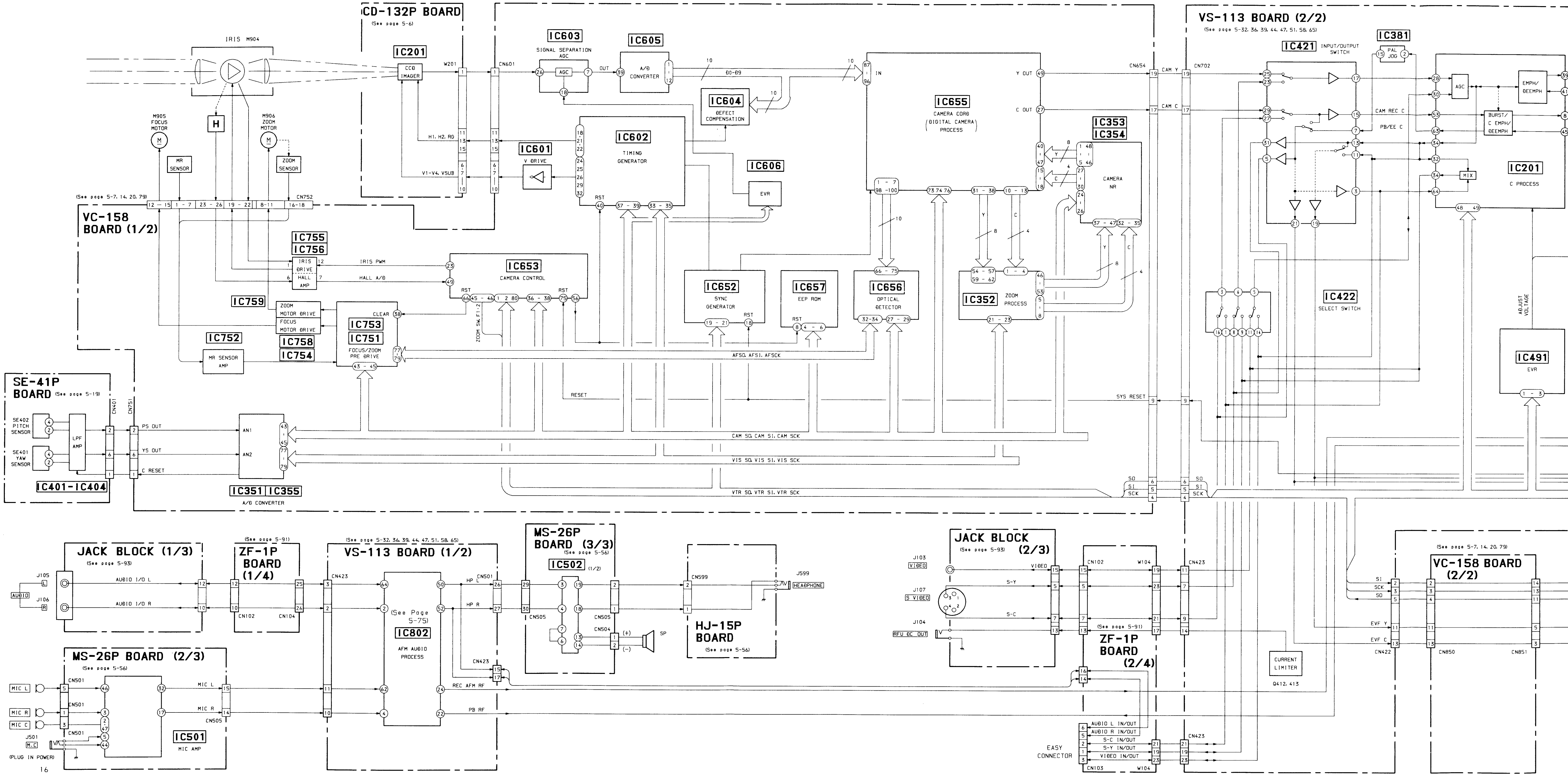
3-17. CIRCUIT BOARDS LOCATION

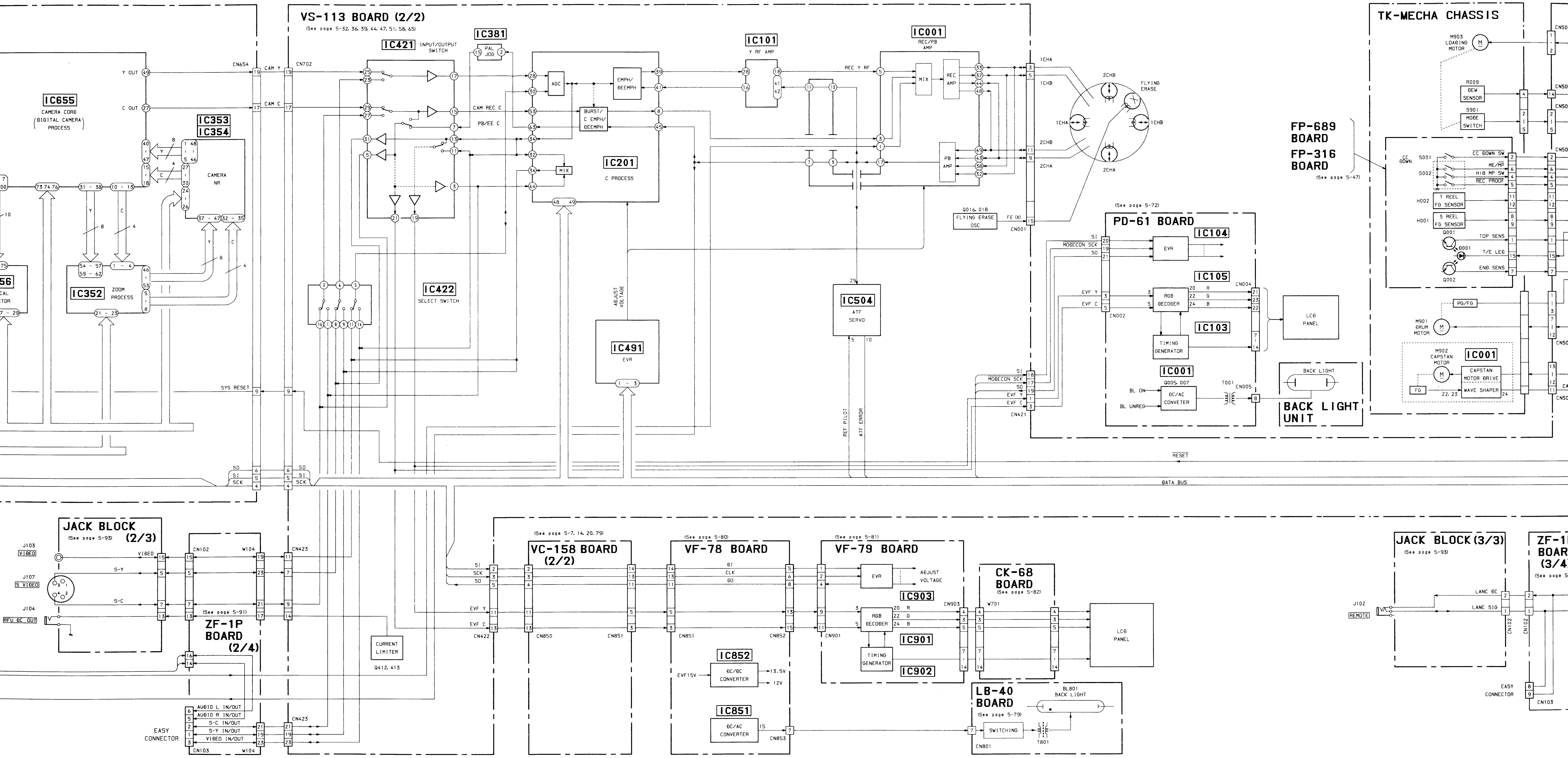

CK-68 (RELAY)
LB-40
(BACK LIGHT)
VF-79
(RGB DECODER)
PD-61
(LCD)
VF-78
(EXTERNAL LIGHT SENSOR)
MS-26P (MIC)
HJ-15P (HEADPHONE)

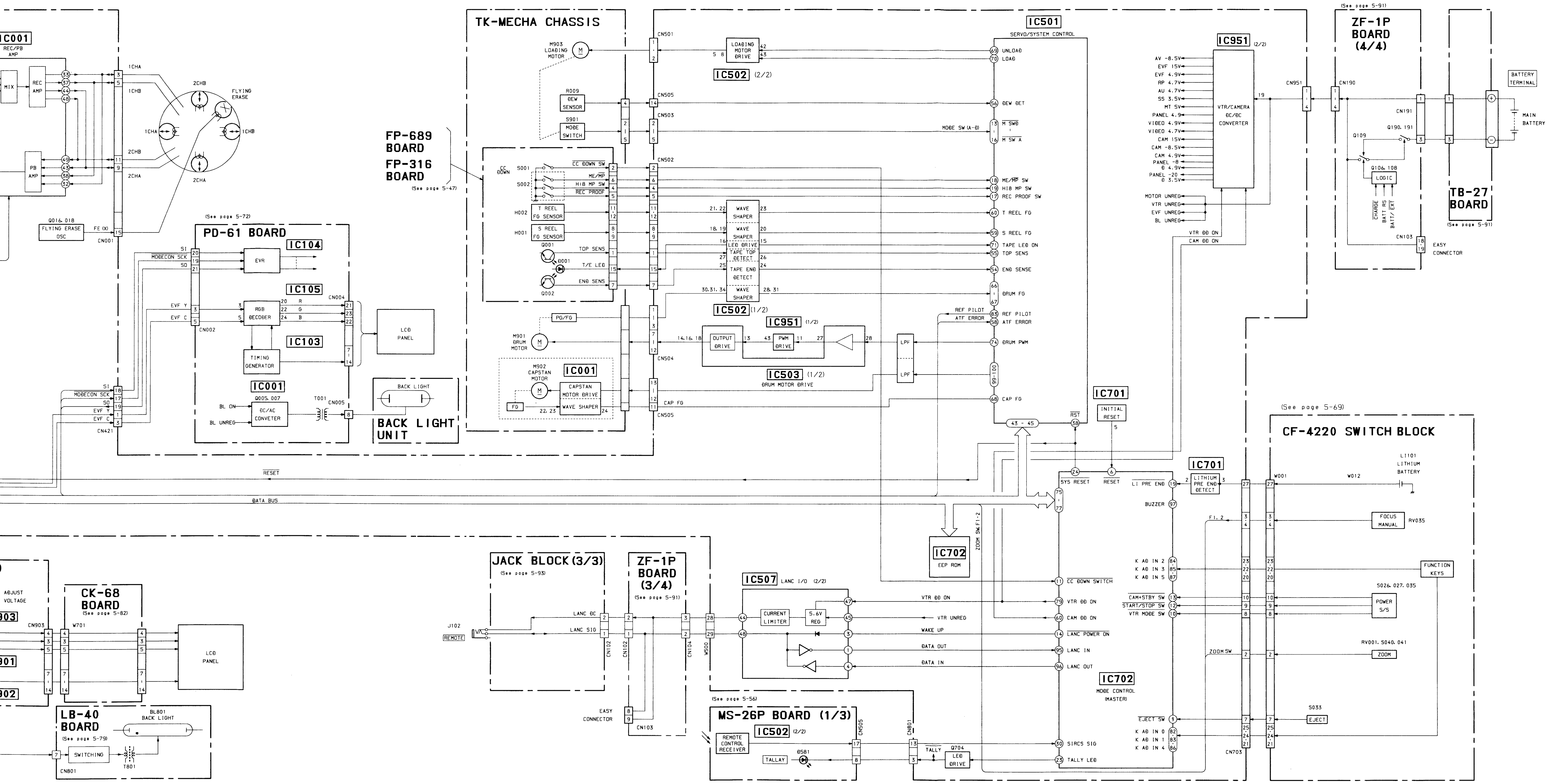

VS-113
(MAIN)
VC-158
(CAMERA)
CD-132P
(CCD IMAGER)
TB-27
(BATTERY TERMINAL)
ZF-1P
(EASY CONNECTOR)
SE-41P
(CAMERA - SHAKE SENSOR)

SECTION 4
BLOCK DIAGRAMS

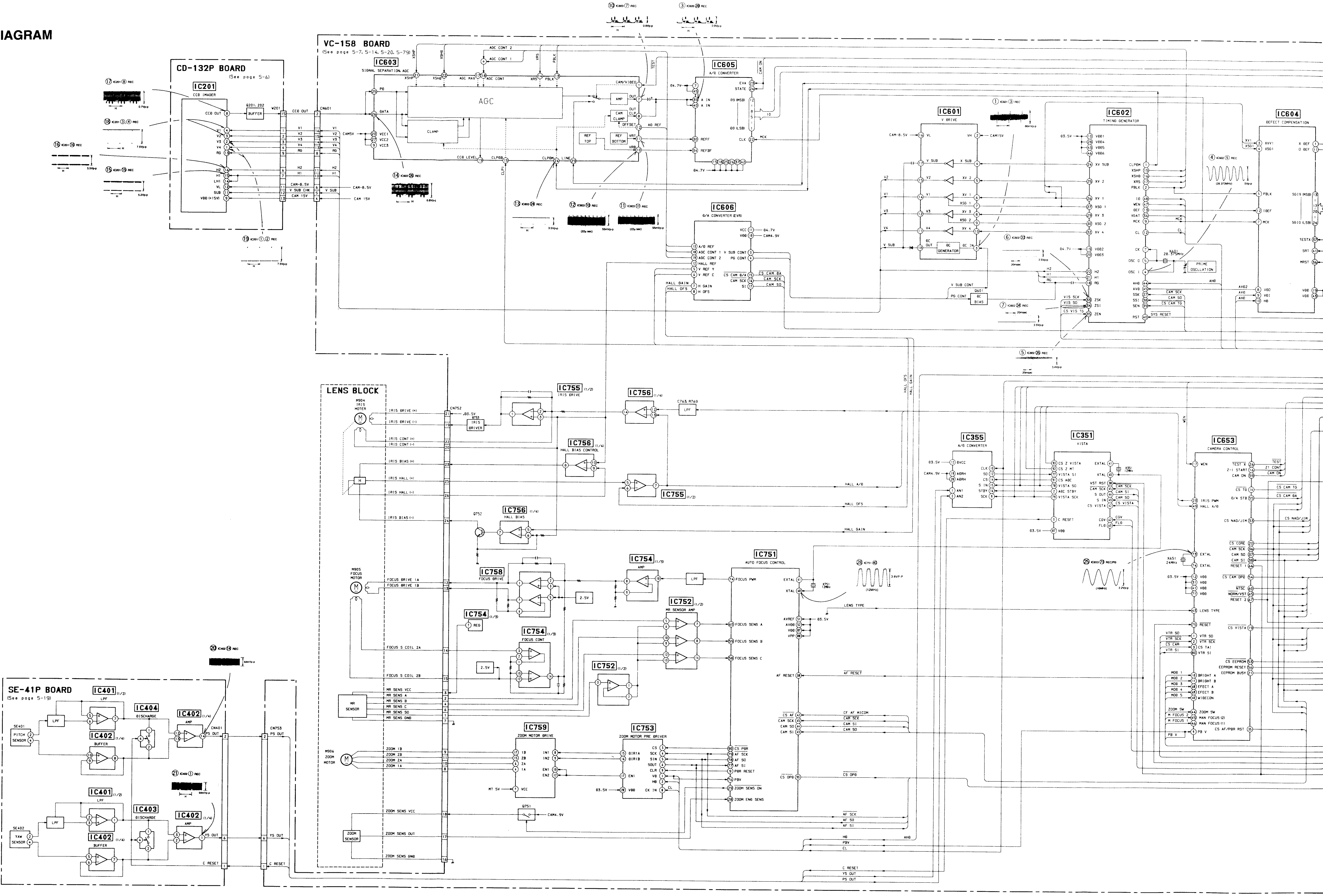
4-1. OVERALL BLOCK DIAGRAM

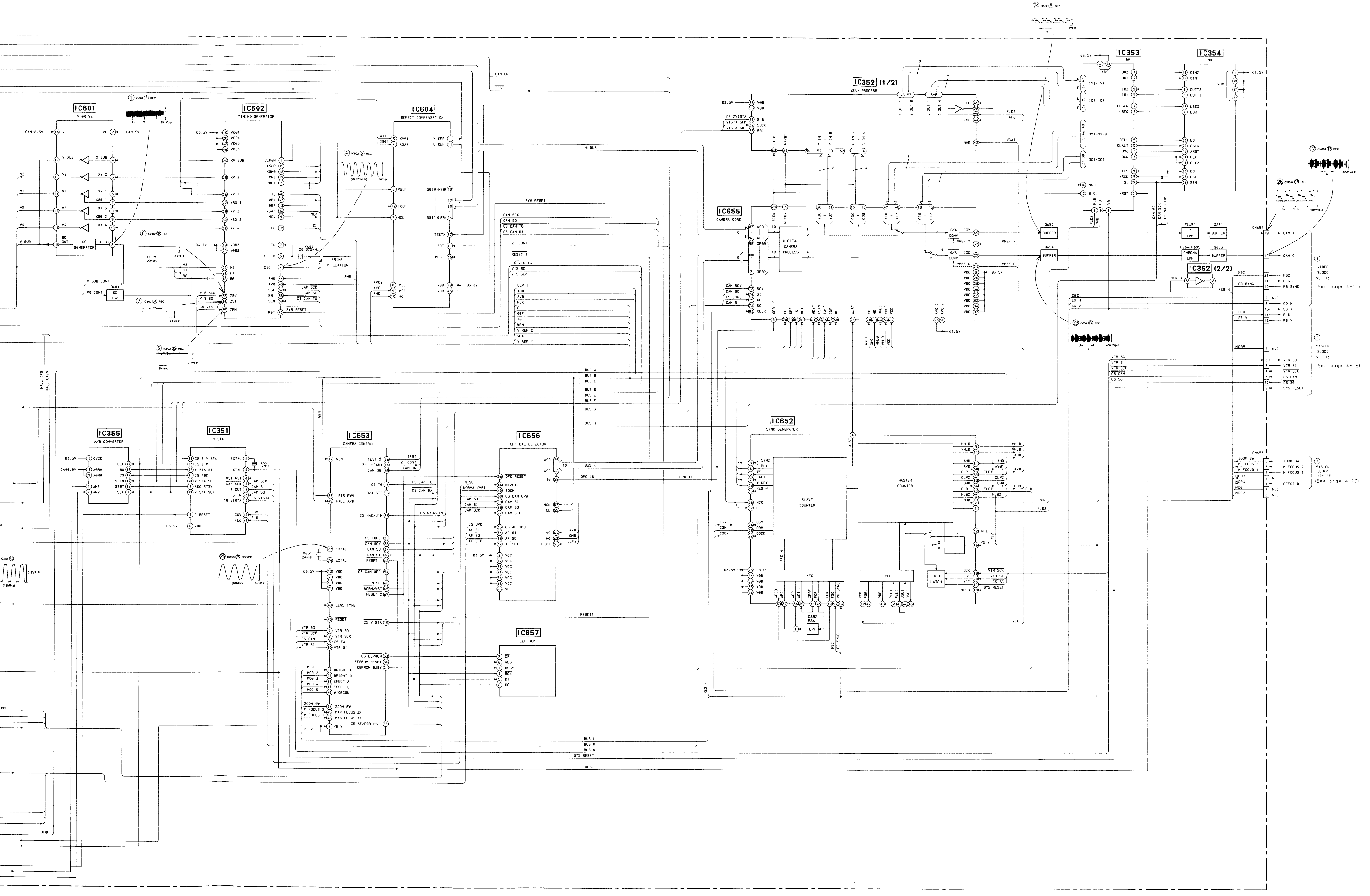

CD-132P BOARD
(See page 5-6)
IC201
CCD IMAGER
IRIS M904
H
M905 FOCUS MOTOR
M906 ZOOM MOTOR
MR SENSOR
ZOOM SENSOR
IC603
SIGNAL SEPARATION AGC
AGC
IC605
A/D CONVERTER
D0-D9
IC604
DEFECT COMPENSATION
IC601
V DRIVE
IC602
TIMING GENERATOR
IC606
EVR
IC655
CAMERA CORD (DIGITAL CAMERA PROCESS)
Y OUT
C OUT
IC353
IC354
CAMERA NR
CN601
CN654
CAM Y
CAM C
H1, H2, RG
V1-V4, VSUB
W201
VC-158 BOARD (1/2)
(See page 5-7, 14, 20, 79)
CN752
IC755
IC756
IRIS DRIVE
HALL AMP
IRIS PWM
HALL A/D
IC653
CAMERA CONTROL
IC759
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IC753
IC751
FOCUS/ZOOM PRE DRIVE
CLEAR
IC758
IC754
IC752
MR SENSOR AMP
ZOOM SW, F1-2
IC652
SYNC GENERATOR
IC657
EEP ROM
IC656
OPTICAL DETECTOR
IC352
ZOOM PROCESS
RST
RESET
AFSO, AFSI, AFSCK
SYS RESET
SE-41P BOARD (See page 5-19)
SE402 PITCH SENSOR
SE401 YAW SENSOR
LPF AMP
IC401-IC404
CN401
CN751
PS OUT
YS OUT
C RESET
AN1
AN2
IC351
IC355
A/D CONVERTER
CAM SO, CAM SI, CAM SCK
VIS SO, VIS SI, VIS SCK
VTR SO, VTR SI, VTR SCK
SO
SI
SCK
VS-113 BOARD (2/2)
(See page 5-32, 36, 39, 44, 47, 51, 58, 65)
IC421
INPUT/OUTPUT SWITCH
IC381
PAL JOG
CN702
CAM REC C
PB/EE C
AGC
EMPH/DEEMPH
BURST/C EMPH/DEEMPH
MIX
IC201
C PROCESS
IC422
SELECT SWITCH
ADJUST VOLTAGE
IC491
EVR
JACK BLOCK (1/3)
(See page 5-93)
J105 AUDIO L
J106 R
AUDIO I/O L
AUDIO I/O R
ZF-1P BOARD (1/4)
(See page 5-91)
CN102
CN104
VS-113 BOARD (1/2)
(See page 5-32, 36, 39, 44, 47, 51, 58, 65)
CN423
(See Page 5-75)
IC802
AFM AUDIO PROCESS
HP L
HP R
CN501
REC AFM RF
PB RF
MS-26P BOARD (3/3)
(See page 5-56)
IC502 (1/2)
CN505
CN504
SP
(+)
(−)
CN599
HJ-15P BOARD
(See page 5-56)
J599
HEADPHONE
MS-26P BOARD (2/3)
(See page 5-56)
MIC L
MIC R
MIC C
J501
M.C
(PLUG IN POWER)
IC501
MIC AMP
16
JACK BLOCK (2/3)
(See page 5-93)
J103 VIDEO
J107 S VIDEO
J104 RFU DC OUT
VIDEO
S-Y
S-C
ZF-1P BOARD (2/4)
(See page 5-91)
W104
CN103
EASY CONNECTOR
AUDIO L IN/OUT
AUDIO R IN/OUT
S-C IN/OUT
S-Y IN/OUT
VIDEO IN/OUT
CURRENT LIMITER
Q412, 413
VC-158 BOARD (2/2)
(See page 5-7, 14, 20, 79)
EVF Y
EVF C
CN422
CN850
CN851

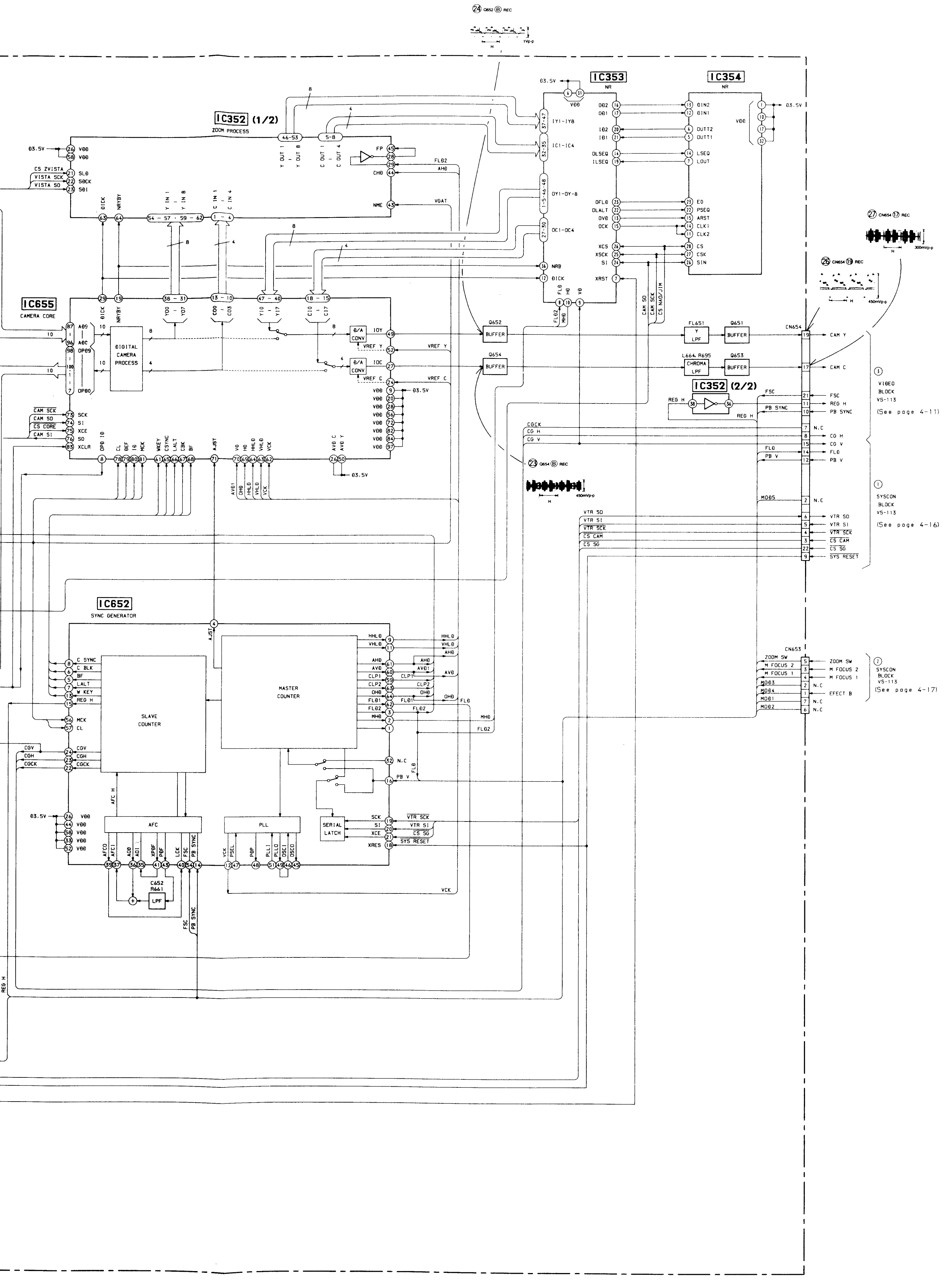

VS-113 BOARD (2/2)
(See page 5-32, 36, 39, 44, 47, 51, 58, 65)
IC655
CAMERA CORE (DIGITAL CAMERA) PROCESS
IC353
IC354
CAMERA NR
IC352
ZOOM PROCESS
IC421
INPUT/OUTPUT SWITCH
IC381
PAL JOG
IC422
SELECT SWITCH
IC491
EVR
ADJUST VOLTAGE
IC201
C PROCESS
AGC
EMPH/ DEEMPH
BURST/ C EMPH/ DEEMPH
MIX
IC101
Y RF AMP
IC001
REC/PB AMP
REC AMP
PB AMP
REC Y RF
IC504
ATF SERVO
REF PILOT
ATF ERROR
Q016, 018
FLYING ERASE OSC
FE (X)
CN001
1CHA
1CHB
2CHB
2CHA
FLYING ERASE
Y OUT
C OUT
CN654
CAM Y
CAM C
CN702
CAM REC C
PB/EE C
SYS RESET
SO
SI
SCK
RESET
DATA BUS
MODECON SCK
EVF Y
EVF C
CN421
TK-MECHA CHASSIS
M903 LOADING MOTOR
R009 DEW SENSOR
S901 MODE SWITCH
CC DOWN
S001
S002
CC DOWN SW
ME/MP
Hi8 MP SW
REC PROOF
H002
T REEL FG SENSOR
H001
S REEL FG SENSOR
Q001
TOP SENS
D001
T/E LED
Q002
END SENS
PG/FG
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
IC001
CAPSTAN MOTOR DRIVE
FG
WAVE SHAPER
22, 23
FP-689 BOARD
FP-316 BOARD
(See page 5-47)
PD-61 BOARD
(See page 5-72)
IC104
EVR
IC105
RGB DECODER
IC103
TIMING GENERATOR
IC001
Q005, 007
DC/AC CONVETER
BL ON
BL UNREG
T001
CN005
CN004
CN002
LCD PANEL
BACK LIGHT
BACK LIGHT UNIT
JACK BLOCK (2/3)
(See page 5-93)
J103 VIDEO
J107 S VIDEO
J104 RFU DC OUT
VIDEO
S-Y
S-C
CN102
W104
ZF-1P BOARD (2/4)
(See page 5-91)
CN423
CN422
CURRENT LIMITER
Q412, 413
EASY CONNECTOR
AUDIO L IN/OUT
AUDIO R IN/OUT
S-C IN/OUT
S-Y IN/OUT
VIDEO IN/OUT
CN103
VC-158 BOARD (2/2)
(See page 5-7, 14, 20, 79)
CN850
CN851
VF-78 BOARD
(See page 5-80)
DI
CLK
DO
CN852
IC852
DC/DC CONVERTER
EVF15V
13.5V
12V
IC851
DC/AC CONVERTER
CN853
VF-79 BOARD
(See page 5-81)
EVR
ADJUST VOLTAGE
IC903
RGB DECODER
IC901
TIMING GENERATOR
IC902
CN901
CN903
CK-68 BOARD
(See page 5-82)
W701
LCD PANEL
LB-40 BOARD
(See page 5-79)
SWITCHING
BL801 BACK LIGHT
T801
CN801
JACK BLOCK (3/3)
(See page 5-93)
J102 REMOTE
LANC DC
LANC SIG
CN102
EASY CONNECTOR
CN103
ZF-1
BOAR
(3/4


IC001
REC/PB AMP
MIX
REC AMP
PB AMP
1CHA
1CHB
2CHB
2CHA
FLYING ERASE
Q016, 018
FLYING ERASE OSC
FE (X)
CN001
(See page 5-72)
PD-61 BOARD
IC104
EVR
IC105
RGB DECODER
IC103
TIMING GENERATOR
IC001
Q005, 007
DC/AC CONVETER
BL ON
BL UNREG
T001
CN005
CN004
CN002
MODECON SCK
EVF Y
EVF C
CN421
LCD PANEL
BACK LIGHT
BACK LIGHT UNIT
TK-MECHA CHASSIS
M903 LOADING MOTOR
R009 DEW SENSOR
S901 MODE SWITCH
FP-689 BOARD
FP-316 BOARD
(See page 5-47)
CC DOWN
S001
S002
CC DOWN SW
ME/MP
Hi8 MP SW
REC PROOF
H002
T REEL FG SENSOR
H001
S REEL FG SENSOR
Q001
TOP SENS
T/E LED
Q002
END SENS
PG/FG
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
FG
CN501
CN505
CN503
CN502
CN504
LOADING MOTOR DRIVE
IC502 (2/2)
WAVE SHAPER
LED DRIVE
TAPE TOP DETECT
TAPE END DETECT
IC502 (1/2)
IC951 (1/2)
OUTPUT DRIVE
PWM DRIVE
IC503 (1/2)
DRUM MOTOR DRIVE
LPF
CAP FG
IC501
SERVO/SYSTEM CONTROL
UNLOAD
LOAD
DEW DET
MODE SW (A-D)
M SW D
M SW A
ME/MP SW
Hi8 MP SW
REC PROOF SW
T REEL FG
S REEL FG
TAPE LED ON
TOP SENS
END SENSE
DRUM FG
REF PILOT
ATF ERROR
DRUM PWM
CAP FG
RST
IC701
INITIAL RESET
IC951 (2/2)
VTR/CAMERA DC/DC CONVERTER
AV -8.5V
EVF 15V
EVF 4.9V
RP 4.7V
AU 4.7V
SS 3.5V
MT 5V
PANEL 4.9
VIDEO 4.9V
VIDEO 4.7V
CAM 15V
CAM -8.5V
CAM 4.9V
PANEL -8
D 4.9V
PANEL -20
D 3.5V
MOTOR UNREG
VTR UNREG
EVF UNREG
BL UNREG
VTR DD ON
CAM DD ON
CN951
(See page 5-91)
ZF-1P BOARD (4/4)
CN190
CN191
Q109
Q190, 191
Q106, 108
LOGIC
CHARGE
BATT RS
BATT/EXT
CN103
EASY CONNECTOR
BATTERY TERMINAL
MAIN BATTERY
TB-27 BOARD
(See page 5-91)
RESET
DATA BUS
IC702
EEP ROM
ZOOM SW F1-2
SYS RESET
RESET
IC701
LITHIUM PRE END DETECT
LI PRE END
BUZZER
K AD IN 2
K AD IN 3
K AD IN 5
CC DOWN SWITCH
VTR DD ON
CAM DD ON
LANC POWER ON
LANC IN
LANC OUT
CAM+STBY SW
START/STOP SW
VTR MODE SW
IC702
MODE CONTROL (MASTER)
EJECT SW
K AD IN 0
K AD IN 1
K AD IN 4
SIRCS SIG
TALLY LED
CN703
(See page 5-69)
CF-4220 SWITCH BLOCK
L1101 LITHIUM BATTERY
W001
W012
FOCUS MANUAL
RV035
FUNCTION KEYS
S026, 027, 035
POWER S/S
RV001, S040, 041
ZOOM
ZOOM SW
S033
EJECT
ADJUST VOLTAGE
CN903
CK-68 BOARD
(See page 5-82)
W701
LCD PANEL
LB-40 BOARD
(See page 5-79)
BL801 BACK LIGHT
SWITCHING
T801
CN801
JACK BLOCK (3/3)
(See page 5-93)
J102
REMOTE
LANC DC
LANC SIG
CN102
ZF-1P BOARD (3/4)
(See page 5-91)
CN104
EASY CONNECTOR
CN103
W500
IC507 LANC I/O (2/2)
CURRENT LIMITER
5.6V REG
VTR DD ON
VTR UNREG
WAKE UP
DATA OUT
DATA IN
(See page 5-56)
MS-26P BOARD (1/3)
IC502 (2/2)
REMOTE CONTROL RECEIVER
D581
TALLAY
CN505
CN801
TALLY
Q704
LED DRIVE

4-2. CAMERA BLOCK DIAGRAM

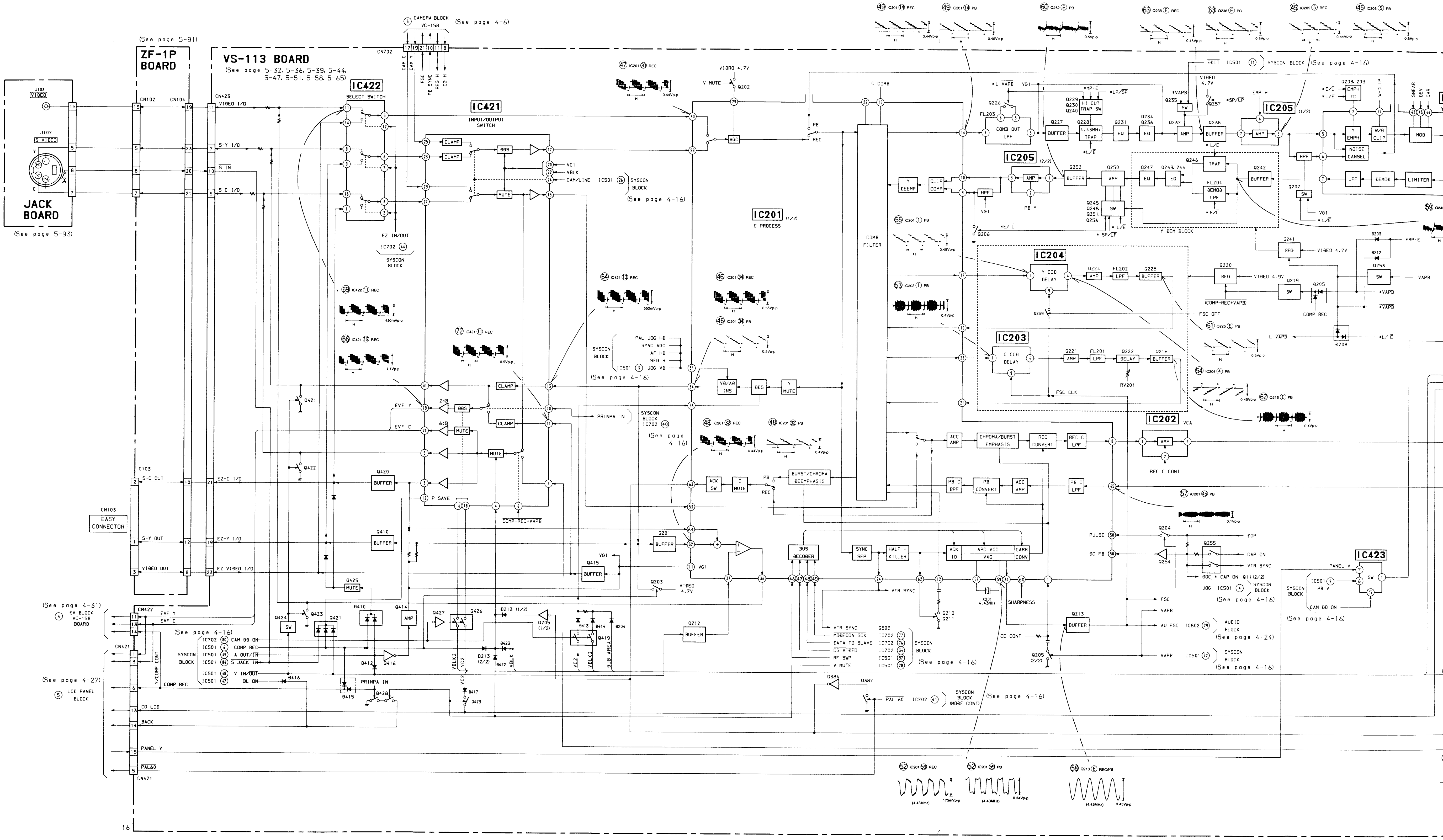

CD-132P BOARD
(See page 5-6)
IC201
CCD IMAGER
Q201, 202
BUFFER
VC-158 BOARD
(See page 5-7, 5-14, 5-20, 5-79)
IC603
SIGNAL SEPARATION, AGC
AGC
CLAMP
REF TOP
REF BOTTOM
IC605
A/D CONVERTER
IC606
D/A CONVERTER (EVR)
IC601
V DRIVE
IC602
TIMING GENERATOR
IC604
DEFECT COMPENSATION
PRIME OSCILLATION
LENS BLOCK
M904 IRIS MOTOR
IRIS DRIVER
IC755
IRIS DRIVE
IC756
HALL BIAS CONTROL
HALL BIAS
M905 FOCUS MOTOR
IC758
FOCUS DRIVE
IC754
AMP
REG
FOCUS CONT
IC752
MR SENSOR AMP
MR SENSOR
IC751
AUTO FOCUS CONTROL
M906 ZOOM MOTOR
IC759
ZOOM MOTOR DRIVE
IC753
ZOOM MOTOR PRE DRIVER
ZOOM SENSOR
IC355
A/D CONVERTER
IC351
VISTA
IC653
CAMERA CONTROL
SE-41P BOARD
(See page 5-19)
SE401 PITCH SENSOR
SE402 YAW SENSOR
IC401
LPF
IC402
BUFFER
AMP
IC404
DISCHARGE
IC403
DISCHARGE
CN401
CN753
PS OUT
YS OUT
C RESET
HALL A/D
HALL OFS
HALL GAIN
LENS TYPE
AF RESET

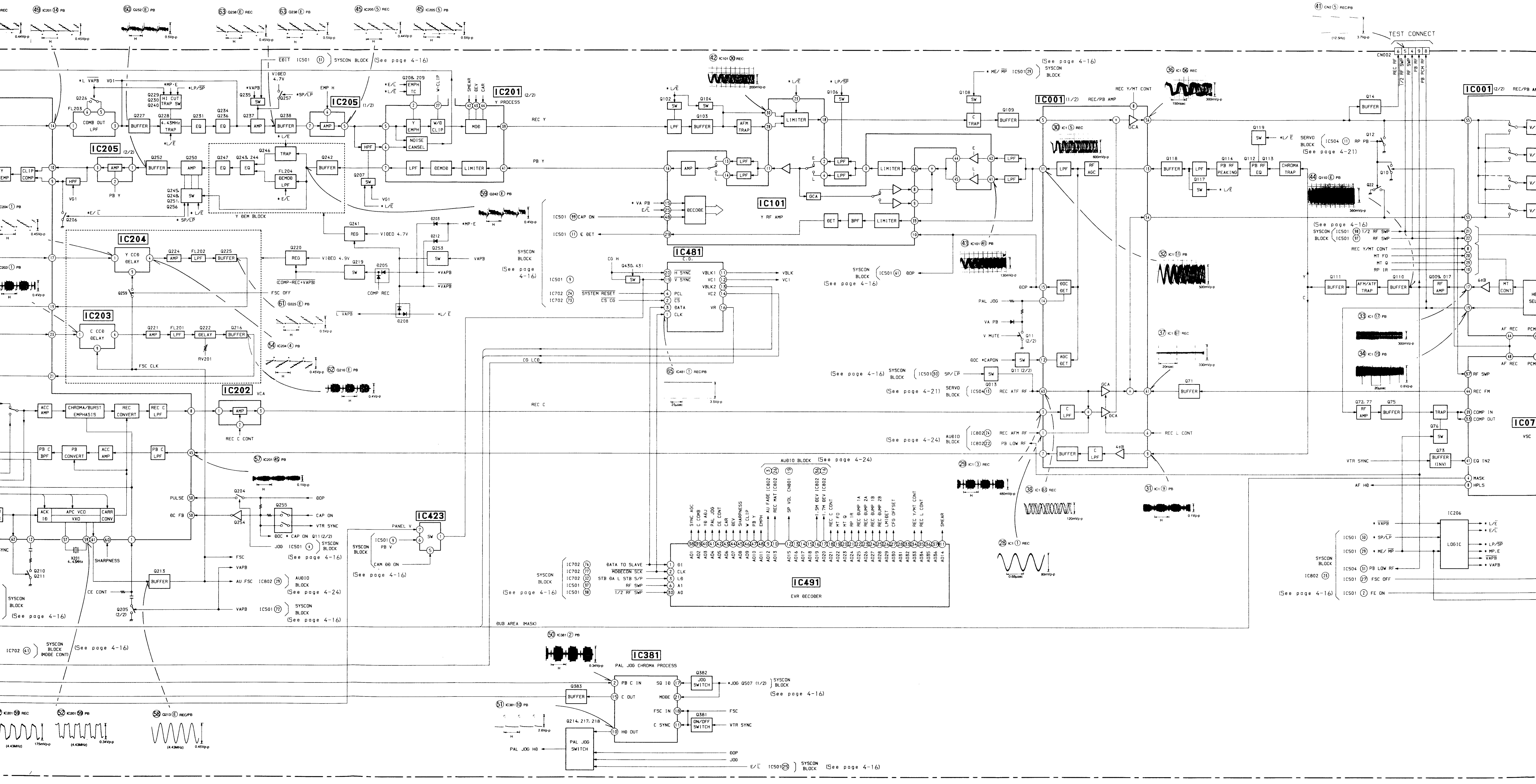

IC601
V DRIVE
IC602
TIMING GENERATOR
IC604
DEFECT COMPENSATION
IC655
CAMERA CORE
DIGITAL CAMERA PROCESS
IC352 (1/2)
ZOOM PROCESS
IC353
NR
IC354
NR
IC352 (2/2)
BUFFER
Y LPF
CHROMA LPF
PRIME OSCILLATION
IC355
A/D CONVERTER
IC351
VISTA
IC653
CAMERA CONTROL
IC656
OPTICAL DETECTOR
IC657
EEP ROM
IC652
SYNC GENERATOR
SLAVE COUNTER
MASTER COUNTER
AFC
PLL
SERIAL LATCH
LPF
CN654
CN653
VIDEO BLOCK VS-113 (See page 4-11)
SYSCON BLOCK VS-113 (See page 4-16)
SYSCON BLOCK VS-113 (See page 4-17)
CAM Y
CAM C
FSC
REG H
PB SYNC
CD H
CD V
FLD
PB V
VTR SO
VTR SI
VTR SCK
CS CAM
CS SG
SYS RESET
ZOOM SW
M FOCUS 2
M FOCUS 1
EFECT B
BUS A
BUS B
BUS C
BUS D
BUS E
BUS F
BUS G
BUS H
BUS L
BUS M
BUS N
RESET2
XRST
HALL OFS
HALL GAIN

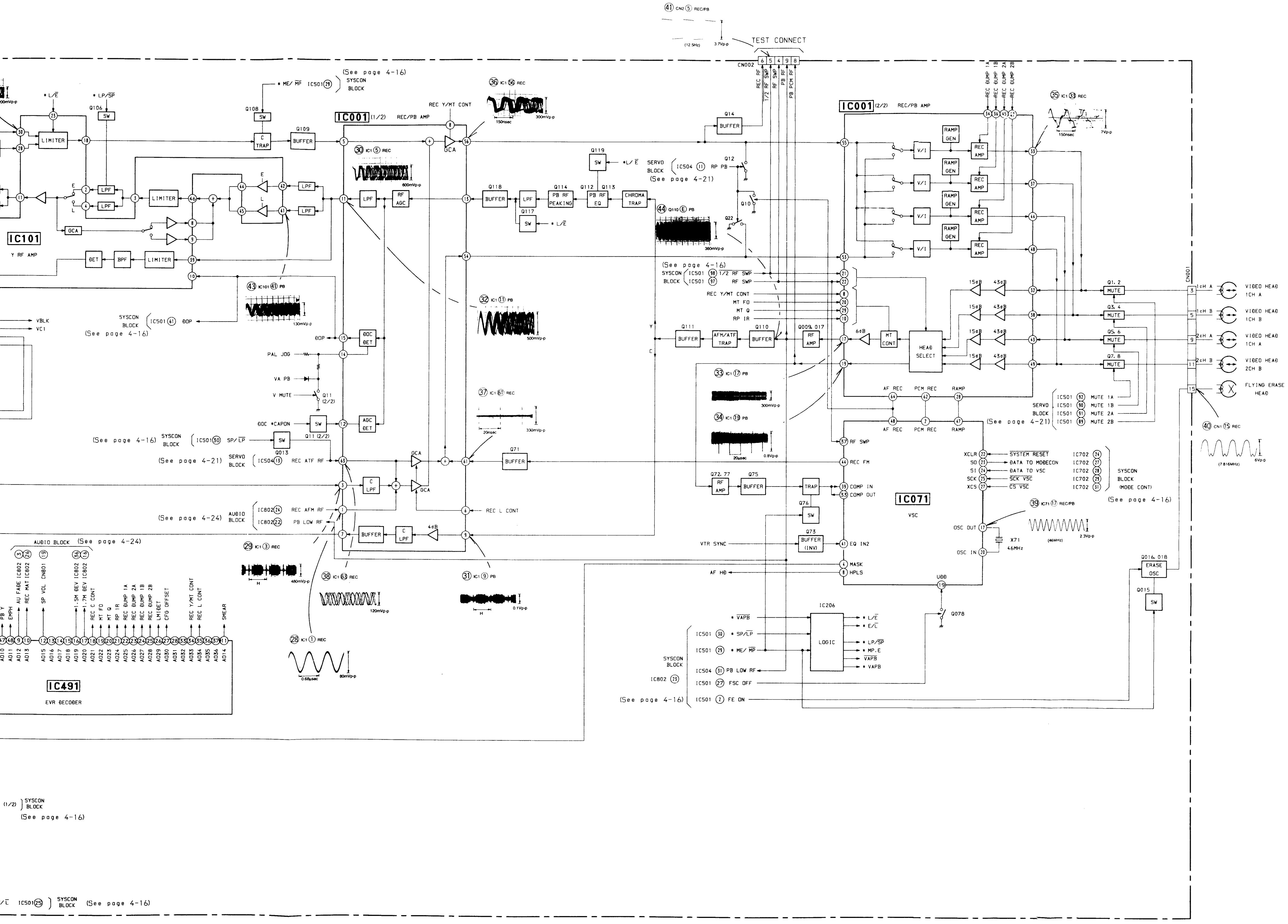


IC352 (1/2)
ZOOM PROCESS
IC655
CAMERA CORE
DIGITAL CAMERA PROCESS
D/A CONV
IC353
NR
IC354
NR
Q652
BUFFER
Q654
BUFFER
FL651
Y LPF
Q651
BUFFER
L664, R695
CHROMA LPF
Q653
BUFFER
IC352 (2/2)
CN654
CAM Y
CAM C
FSC
REG H
PB SYNC
N.C
CG H
CG V
FLD
PB V
VTR SO
VTR SI
VTR SCK
CS CAM
CS SG
SYS RESET
③ VIDEO BLOCK VS-113 (See page 4-11)
① SYSCON BLOCK VS-113 (See page 4-16)
CN653
ZOOM SW
M FOCUS 2
M FOCUS 1
EFECT B
MOD3
MOD4
MOD1
MOD2
② SYSCON BLOCK VS-113 (See page 4-17)
IC652
SYNC GENERATOR
SLAVE COUNTER
MASTER COUNTER
AFC
PLL
SERIAL LATCH
C652 R661
LPF
D3.5V
VDD
CS ZVISTA
VISTA SCK
VISTA SO
CAM SCK
CAM SO
CS CORE
CAM SI
CGV
CGH
CGCK
REG H
㉔ Q652 Ⓑ REC
1Vp-p
H
㉓ Q654 Ⓑ REC
450mVp-p
㉖ CN654 ⑲ REC
450mVp-p
㉗ CN654 ⑰ REC
300mVp-p

4-3. VIDEO BLOCK DIAGRAM

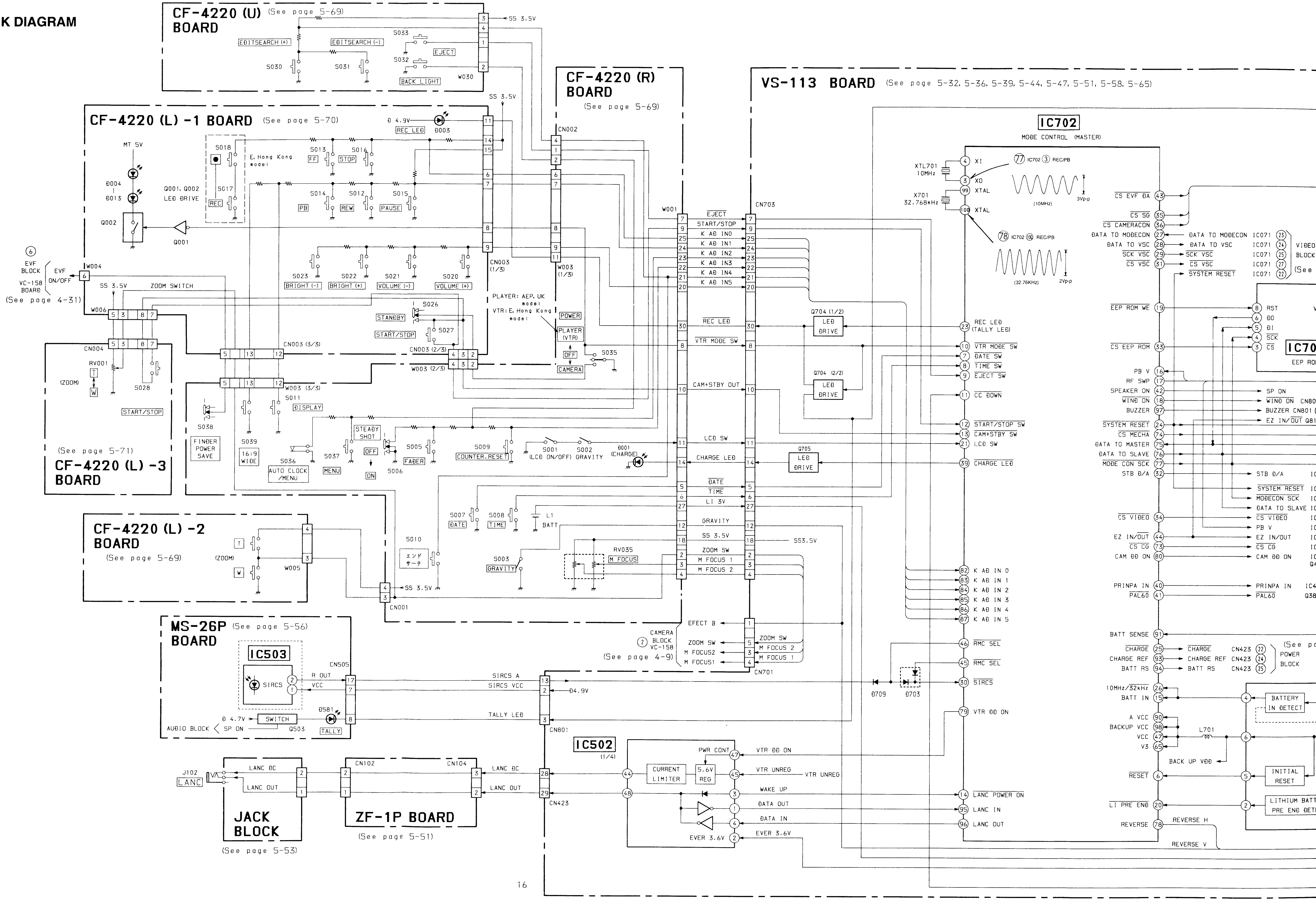

JACK BOARD
(See page 5-93)
J103 VIDEO
J107 S VIDEO
ZF-1P BOARD
(See page 5-91)
VS-113 BOARD
(See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
CN102
CN104
CN423
CN702
CAMERA BLOCK VC-158 (See page 4-6)
IC422 SELECT SWITCH
IC421 INPUT/OUTPUT SWITCH
IC201 (1/2) C PROCESS
COMB FILTER
IC202 VCA
IC203 C CCD DELAY
IC204 Y CCD DELAY
IC205
IC423
Y OEM BLOCK
CLAMP
MUTE
BUFFER
AGC
EASY CONNECTOR
CN103
S-C OUT
S-Y OUT
VIDEO OUT
EZ-C I/O
EZ-Y I/O
EZ VIDEO I/O
VIDEO I/O
S-Y I/O
S IN
S-C I/O
EVF Y
EVF C
P SAVE
COMP-REC+VAPB
SYSCON BLOCK
(See page 4-16)
(See page 4-31) EV BLOCK VC-158 BOARD
(See page 4-27) LCD PANEL BLOCK
CN422
CN421
CG LCD
BACK
PANEL V
PAL60
PRINPA IN
VG/AB INS
BURST/CHROMA DEEMPHASIS
CHROMA/BURST EMPHASIS
REC CONVERT
REC C LPF
PB C BPF
PB CONVERT
ACC AMP
PB C LPF
BUS DECODER
SYNC SEP
HALF H KILLER
ACK ID
APC VCO VXO
CARR CONV
SHARPNESS
VTR SYNC
FSC
VAPB
AU FSC IC802 AUDIO BLOCK (See page 4-24)
COMB OUT LPF
4.43MHz TRAP
HI CUT TRAP SW
EQ
AMP
TRAP
DEMOD
LPF
NOISE CANSEL
W/D CLIP
EMPH
MOD
LIMITER
REG
VIDEO 4.7V
VIDEO 4.9V
FSC OFF
FSC CLK
REC C CONT
CAP ON
VTR SYNC
JOG
CAM OD ON
16

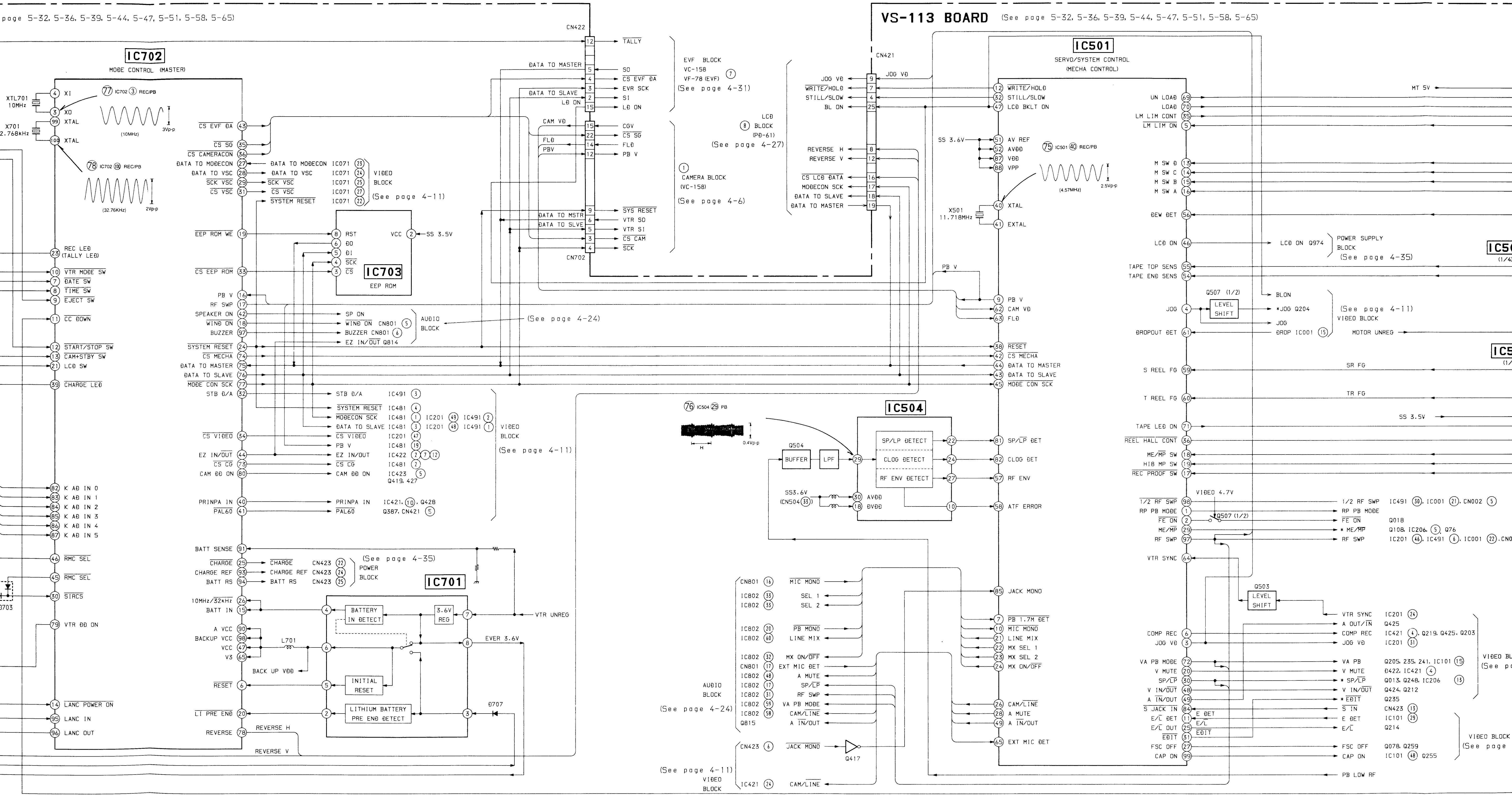

IC201 Y PROCESS
IC205
IC204 Y CCD DELAY
IC203 C CCD DELAY
IC202 VCA
IC423
IC481 C.G.
IC491 EVR DECODER
IC381 PAL JOG CHROMA PROCESS
IC101 Y RF AMP
IC001 (1/2) REC/PB AMP
IC001 (2/2) REC/PB AMP
IC206 LOGIC
TEST CONNECT
CN002
COMB OUT LPF
4.43MHz TRAP
HI CUT TRAP SW
EQ
AMP
BUFFER
LIMITER
MOD
DEMOD
NOISE CANSEL
EMPH TC
W/D CLIP
HPF
LPF
REG
SW
DECODE
AFM TRAP
DET
BPF
GCA
RF AGC
PB RF PEAKING
PB RF EQ
CHROMA TRAP
AGC DET
DOC DET
AFM/ATF TRAP
RF AMP
MT CONT
C LPF
TRAP
BUFFER (INV)
CHROMA/BURST EMPHASIS
REC CONVERT
REC C LPF
ACC AMP
PB C BPF
PB CONVERT
PB C LPF
APC VCO
VXO
CARR CONV
ACK ID
SHARPNESS
JOG SWITCH
ON/OFF SWITCH
PAL JOG SWITCH
Y DEM BLOCK
SYSCON BLOCK (See page 4-16)
SERVO BLOCK (See page 4-21)
AUDIO BLOCK (See page 4-24)
REC Y
PB Y
REC C
PB C IN
C OUT
HD OUT
FSC
VTR SYNC
REC RF SWP
1/2 RF SWP
RF SWP
PB RF
PB PCM RF
REC Y/MT CONT
REC L CONT
REC ATF RF
REC AFM RF
PB LOW RF
COMP IN
COMP OUT
EQ IN2
MASK
HPLS
DATA TO SLAVE
MODECON SCK
STB DA L STB S/P
SYSTEM RESET
CS CG
VBLK
VC1
CG LCD
SUB AREA (MASK)
X201 4.43MHz
RV201

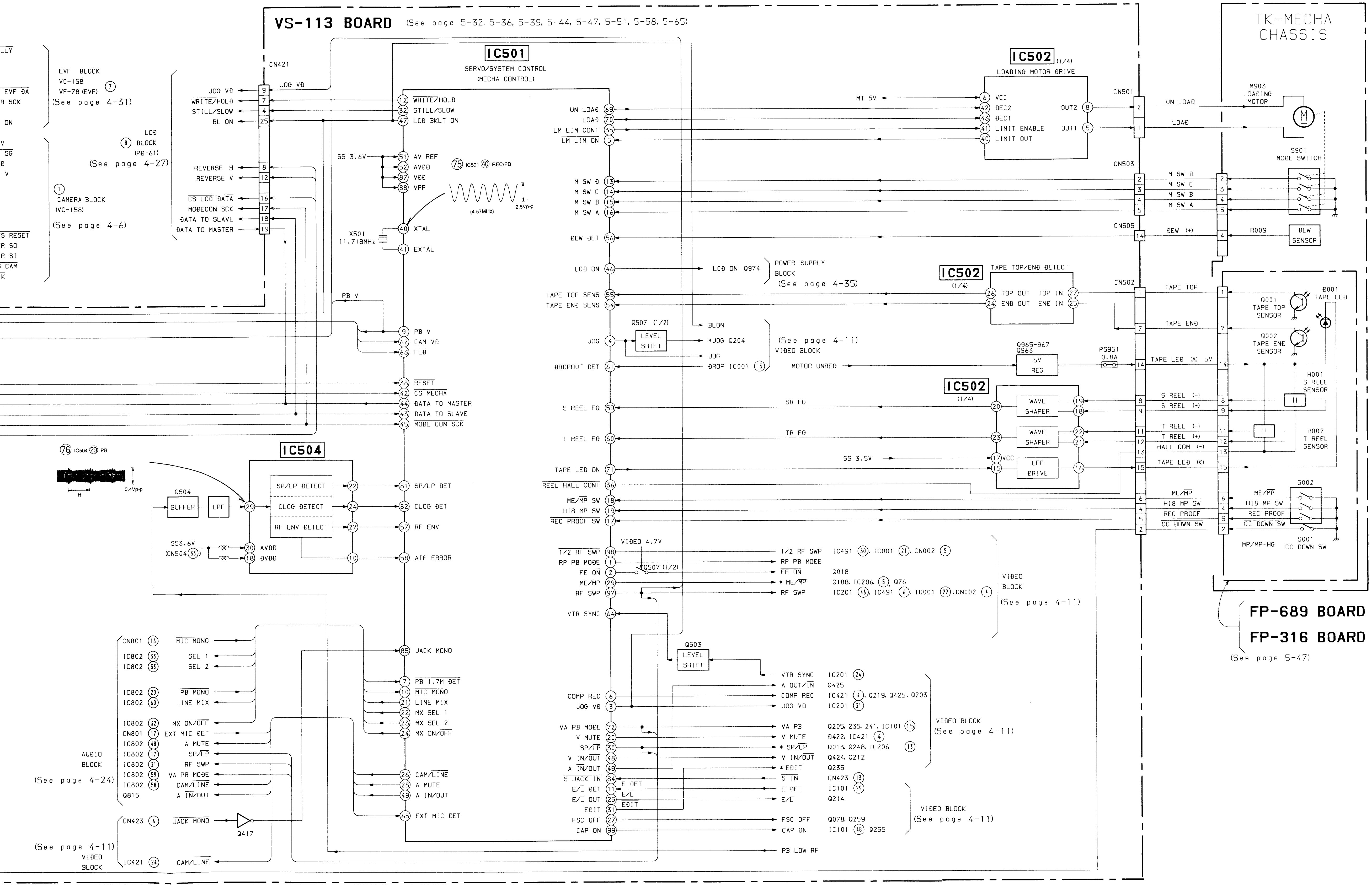

TEST CONNECT
CN002
REC RF
RF SWP
1/2 SWP
PB RF
PB PCM RF
IC001 (1/2) REC/PB AMP
IC001 (2/2) REC/PB AMP
IC101
Y RF AMP
IC071
VSC
IC491
EVR DECODER
IC206
LOGIC
LIMITER
LPF
GCA
BUFFER
C TRAP
SW
RF AGC
PB RF PEAKING
PB RF EQ
CHROMA TRAP
DET
BPF
DOC DET
AGC DET
AFM/ATF TRAP
RF AMP
MT CONT
HEAD SELECT
RAMP GEN
REC AMP
V/I
MUTE
TRAP
BUFFER (INV)
ERASE OSC
(See page 4-16) SYSCON BLOCK
(See page 4-21) SERVO BLOCK
(See page 4-24) AUDIO BLOCK
REC Y/MT CONT
REC L CONT
REC AFM RF
PB LOW RF
REC ATF RF
SP/LP
DOC •CAPON
V MUTE
VA PB
PAL JOG
DOP
VBLK
VCI
RP PB
RF SWP
MT FO
MT Q
RP IR
AF REC
PCM REC
RAMP
COMP IN
COMP OUT
EQ IN2
MASK
HPLS
REC FM
OSC OUT
OSC IN
X71 46MHz
VTR SYNC
AF HD
SYSTEM RESET
DATA TO MOBECON
DATA TO VSC
SCK VSC
CS VSC
(MODE CONT)
MUTE 1A
MUTE 1B
MUTE 2A
MUTE 2B
REC DUMP 1A
REC DUMP 1B
REC DUMP 2A
REC DUMP 2B
CN001
VIDEO HEAD 1CH A
VIDEO HEAD 1CH B
VIDEO HEAD 2CH A
VIDEO HEAD 2CH B
FLYING ERASE HEAD
PB LOW RF
FSC OFF
FE ON
Q078
SHEAR

VIDEO BLOCK DIAGRAM

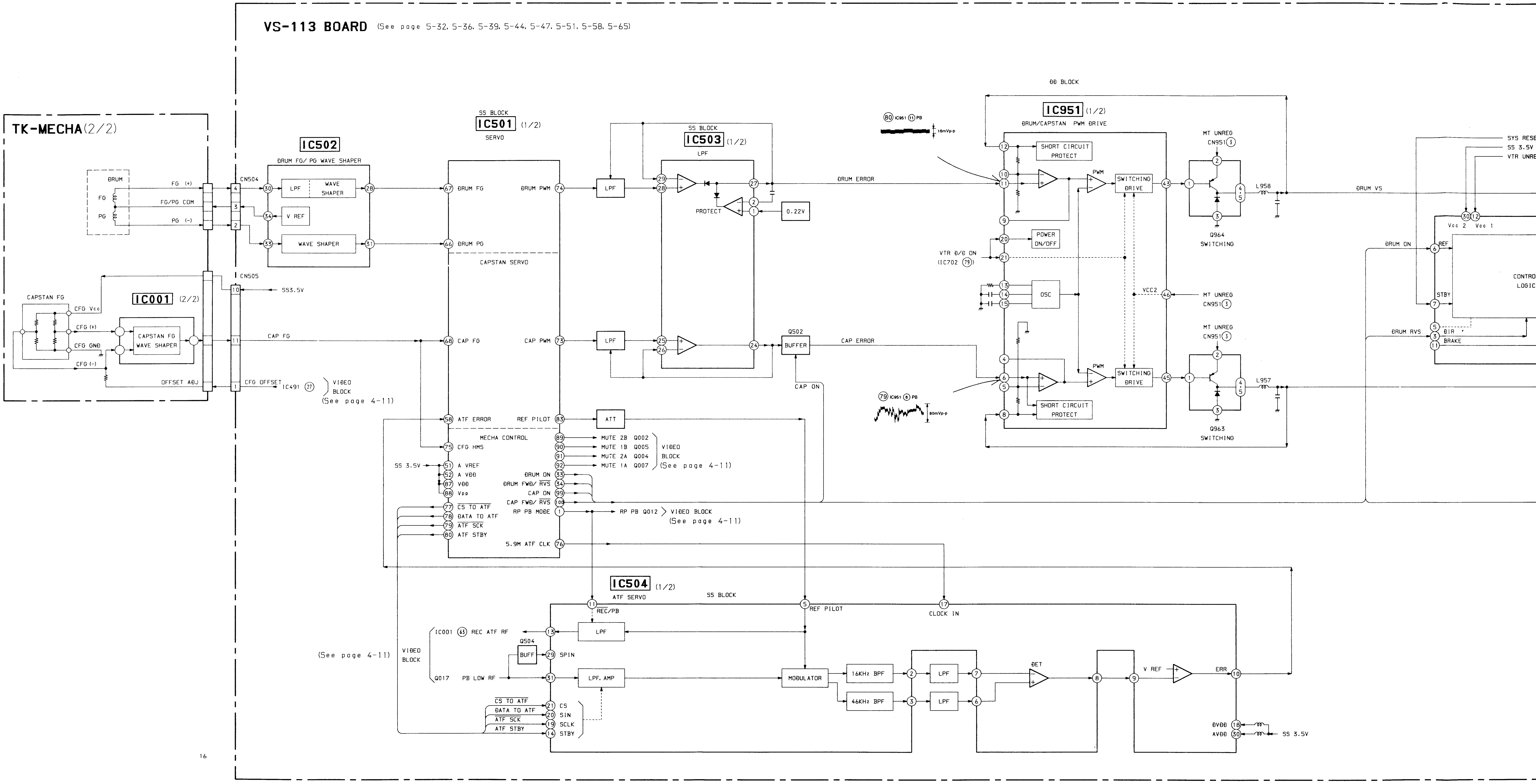
4-4. SYSTEM CONTROL BLOCK DIAGRAM

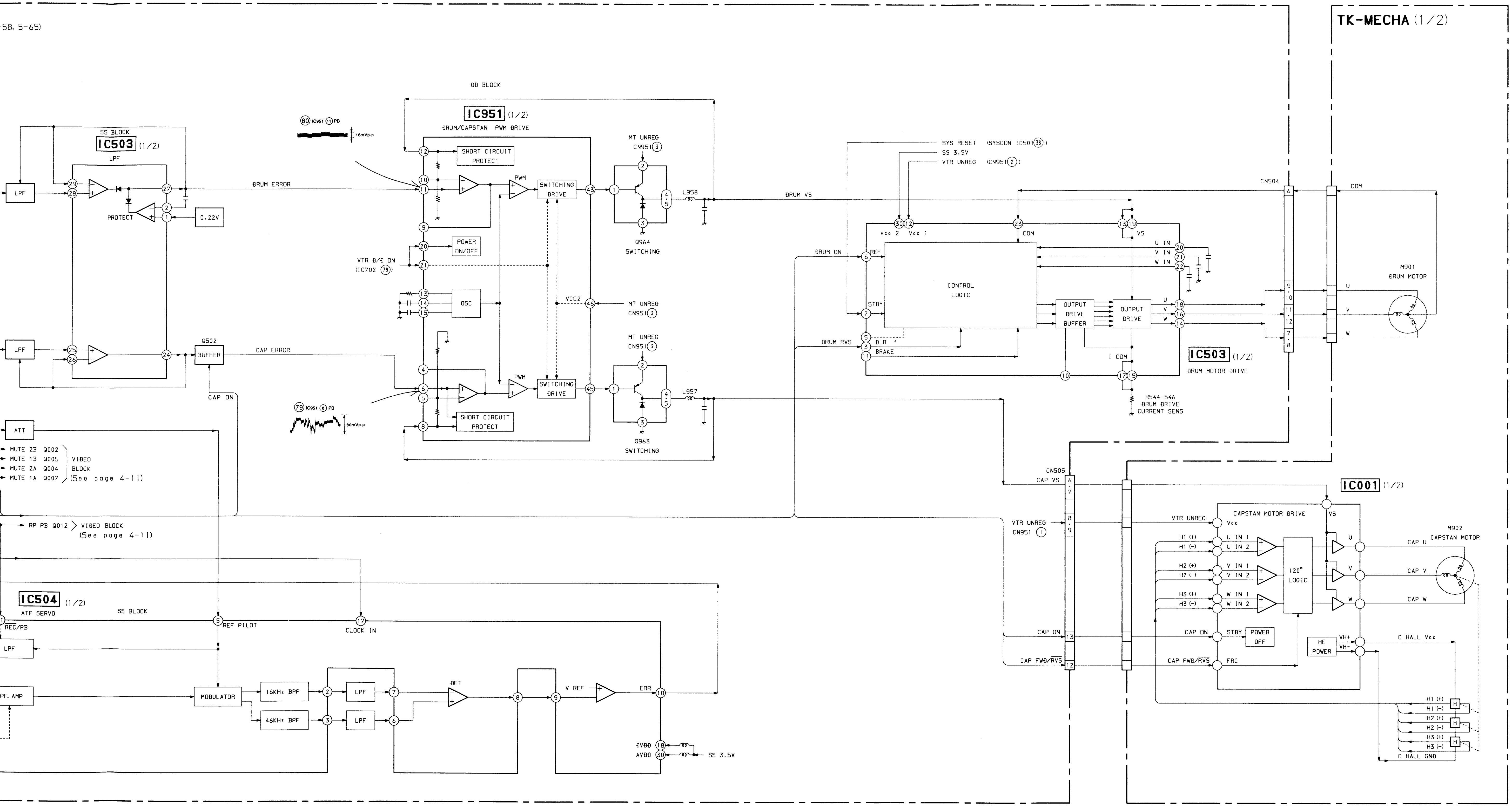

CF-4220 (U) BOARD (See page 5-69)
EDITSEARCH (+)
EDITSEARCH (-)
EJECT
BACK LIGHT
CF-4220 (R) BOARD (See page 5-69)
CF-4220 (L) -1 BOARD (See page 5-70)
REC LED
FF
STOP
REC
PB
REW
PAUSE
Q001, Q002 LED DRIVE
BRIGHT (-)
BRIGHT (+)
VOLUME (-)
VOLUME (+)
STANDBY
START/STOP
POWER
PLAYER (VTR)
OFF
CAMERA
PLAYER: AEP, UK model
VTR: E, Hong Kong model
EVF BLOCK VC-158 BOARD (See page 4-31)
ZOOM SWITCH
CF-4220 (L) -3 BOARD (See page 5-71)
FINDER POWER SAVE
16:9 WIDE
AUTO CLOCK /MENU
MENU
DISPLAY
STEADY SHOT
FADER
COUNTER RESET
LCD ON/OFF
GRAVITY
CHARGE
CF-4220 (L) -2 BOARD (See page 5-69)
DATE
TIME
BATT
M FOCUS
MS-26P BOARD (See page 5-56)
IC503
SIRCS
SWITCH
TALLY
AUDIO BLOCK
CAMERA BLOCK VC-158 (See page 4-9)
J102 LANC
JACK BLOCK (See page 5-53)
ZF-1P BOARD (See page 5-51)
IC502 (1/4)
CURRENT LIMITER
5.6V REG
VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
IC702 MODE CONTROL (MASTER)
XTL701 10MHz
X701 32.768kHz
LED DRIVE
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATT PRE END DETECT
POWER BLOCK
16


page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
IC702
MODE CONTROL (MASTER)
XTL701 10MHz
X701 2.768kHz
XI
XO
XTAL
XTAL
77 IC702 3 REC/PB
(10MHz)
3Vp-p
78 IC702 100 REC/PB
(32.76KHz)
2Vp-p
CS EVF DA
CS SG
CS CAMERACON
DATA TO MODECON
DATA TO VSC
SCK VSC
CS VSC
DATA TO MODECON IC071 23
DATA TO VSC IC071 24
SCK VSC IC071 25
CS VSC IC071 27
SYSTEM RESET IC071 22
VIDEO BLOCK
(See page 4-11)
EEP ROM WE
CS EEP ROM
RST
DO
DI
SCK
CS
VCC
SS 3.5V
IC703
EEP ROM
REC LED (TALLY LED)
VTR MODE SW
DATE SW
TIME SW
EJECT SW
CC DOWN
START/STOP SW
CAM+STBY SW
LCD SW
CHARGE LED
PB V
RF SWP
SPEAKER ON
WIND ON
BUZZER
SP ON
WIND ON CN801 5
BUZZER CN801 6
EZ IN/OUT Q814
AUDIO BLOCK
(See page 4-24)
SYSTEM RESET
CS MECHA
DATA TO MASTER
DATA TO SLAVE
MODE CON SCK
STB D/A
STB D/A IC491 3
SYSTEM RESET IC481 4
MODECON SCK IC481 1 IC201 49 IC491 2
DATA TO SLAVE IC481 3 IC201 48 IC491 1
CS VIDEO IC201 47
PB V IC481 19
EZ IN/OUT IC422 2 7 12
CS CG IC481 2
CAM DD ON IC423 5 Q419, 427
VIDEO BLOCK
(See page 4-11)
CS VIDEO
EZ IN/OUT
CS CG
CAM DD ON
K AD IN 0
K AD IN 1
K AD IN 2
K AD IN 3
K AD IN 4
K AD IN 5
PRINPA IN
PAL60
PRINPA IN IC421 10, Q428
PAL60 Q387, CN421 5
RMC SEL
RMC SEL
SIRCS
D703
VTR DD ON
BATT SENSE
CHARGE
CHARGE REF
BATT RS
CHARGE CN423 22
CHARGE REF CN423 24
BATT RS CN423 25
(See page 4-35)
POWER BLOCK
IC701
10MHz/32kHz
BATT IN
A VCC
BACKUP VCC
VCC
V3
L701
BACK UP VDD
BATTERY IN DETECT
3.6V REG
VTR UNREG
EVER 3.6V
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D707
RESET
LI PRE END
REVERSE
REVERSE H
REVERSE V
LANC POWER ON
LANC IN
LANC OUT
CN422
TALLY
DATA TO MASTER
SO
CS EVF DA
EVR SCK
DATA TO SLAVE
SI
LD ON
LD ON
EVF BLOCK
VC-158
VF-78 (EVF) 7
(See page 4-31)
CAM VD
FLD
PBV
CGV
CS SG
FLD
PB V
1 CAMERA BLOCK (VC-158)
(See page 4-6)
DATA TO MSTR
DATA TO SLVE
SYS RESET
VTR SO
VTR SI
CS CAM
SCK
CN702
LCD 8 BLOCK (PD-61)
(See page 4-27)
VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
CN421
JOG VD
JOG VD
WRITE/HOLD
STILL/SLOW
BL ON
REVERSE H
REVERSE V
CS LCD DATA
MODECON SCK
DATA TO SLAVE
DATA TO MASTER
IC501
SERVO/SYSTEM CONTROL (MECHA CONTROL)
WRITE/HOLD
STILL/SLOW
LCD BKLT ON
SS 3.6V
AV REF
AVDD
VDD
VPP
75 IC501 40 REC/PB
(4.57MHz)
2.5Vp-p
X501 11.718MHz
XTAL
EXTAL
PB V
PB V
CAM VD
FLD
RESET
CS MECHA
DATA TO MASTER
DATA TO SLAVE
MODE CON SCK
76 IC504 29 PB
H
0.4Vp-p
IC504
Q504
BUFFER
LPF
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
SS3.6V (CN504 33)
AVDD
DVDD
SP/LP DET
CLOG DET
RF ENV
ATF ERROR
CN801 16 MIC MONO
IC802 33 SEL 1
IC802 33 SEL 2
IC802 20 PB MONO
IC802 60 LINE MIX
IC802 32 MX ON/OFF
CN801 17 EXT MIC DET
IC802 48 A MUTE
IC802 17 SP/LP
IC802 59 RF SWP
IC802 58 VA PB MODE
IC802 58 CAM/LINE
Q815 A IN/OUT
AUDIO BLOCK
(See page 4-24)
CN423 6 JACK MONO
Q417
(See page 4-11) VIDEO BLOCK
IC421 24 CAM/LINE
JACK MONO
PB 1.7M DET
MIC MONO
LINE MIX
MX SEL 1
MX SEL 2
MX ON/OFF
CAM/LINE
A MUTE
A IN/OUT
EXT MIC DET
UN LOAD
LOAD
LM LIM CONT
LM LIM ON
MT 5V
M SW D
M SW C
M SW B
M SW A
DEW DET
LCD ON
LCD ON Q974
POWER SUPPLY BLOCK
(See page 4-35)
TAPE TOP SENS
TAPE END SENS
IC5
(1/4
Q507 (1/2)
LEVEL SHIFT
JOG
BLON
*JOG Q204
JOG
DROP IC001 15
(See page 4-11)
VIDEO BLOCK
DROPOUT DET
MOTOR UNREG
IC5
(1/
S REEL FG
SR FG
T REEL FG
TR FG
SS 3.5V
TAPE LED ON
REEL HALL CONT
ME/MP SW
HI8 MP SW
REC PROOF SW
VIDEO 4.7V
1/2 RF SWP
RP PB MODE
FE ON
ME/MP
RF SWP
Q507 (1/2)
1/2 RF SWP IC491 30, IC001 21, CN002 5
RP PB MODE
FE ON Q018
* ME/MP Q108, IC206 5, Q76
RF SWP IC201 46, IC491 6, IC001 22, CN0
VTR SYNC
Q503
LEVEL SHIFT
VTR SYNC IC201 24
A OUT/IN Q425
COMP REC IC421 4, Q219, Q425, Q203
JOG VD IC201 31
COMP REC
JOG VD
VA PB MODE
V MUTE
SP/LP
V IN/OUT
A IN/OUT
S JACK IN
E/L DET
E/L OUT
EDIT
FSC OFF
CAP ON
E DET
E/L
EDIT
VA PB Q205, 235, 241, IC101 15
V MUTE D422, IC421 4
* SP/LP Q013, Q248, IC206 13
V IN/OUT Q424, Q212
* EDIT Q235
S IN CN423 13
E DET IC101 29
E/L Q214
FSC OFF Q078, Q259
CAP ON IC101 48 Q255
VIDEO BL
(See p
VIDEO BLOCK
(See page
PB LOW RF

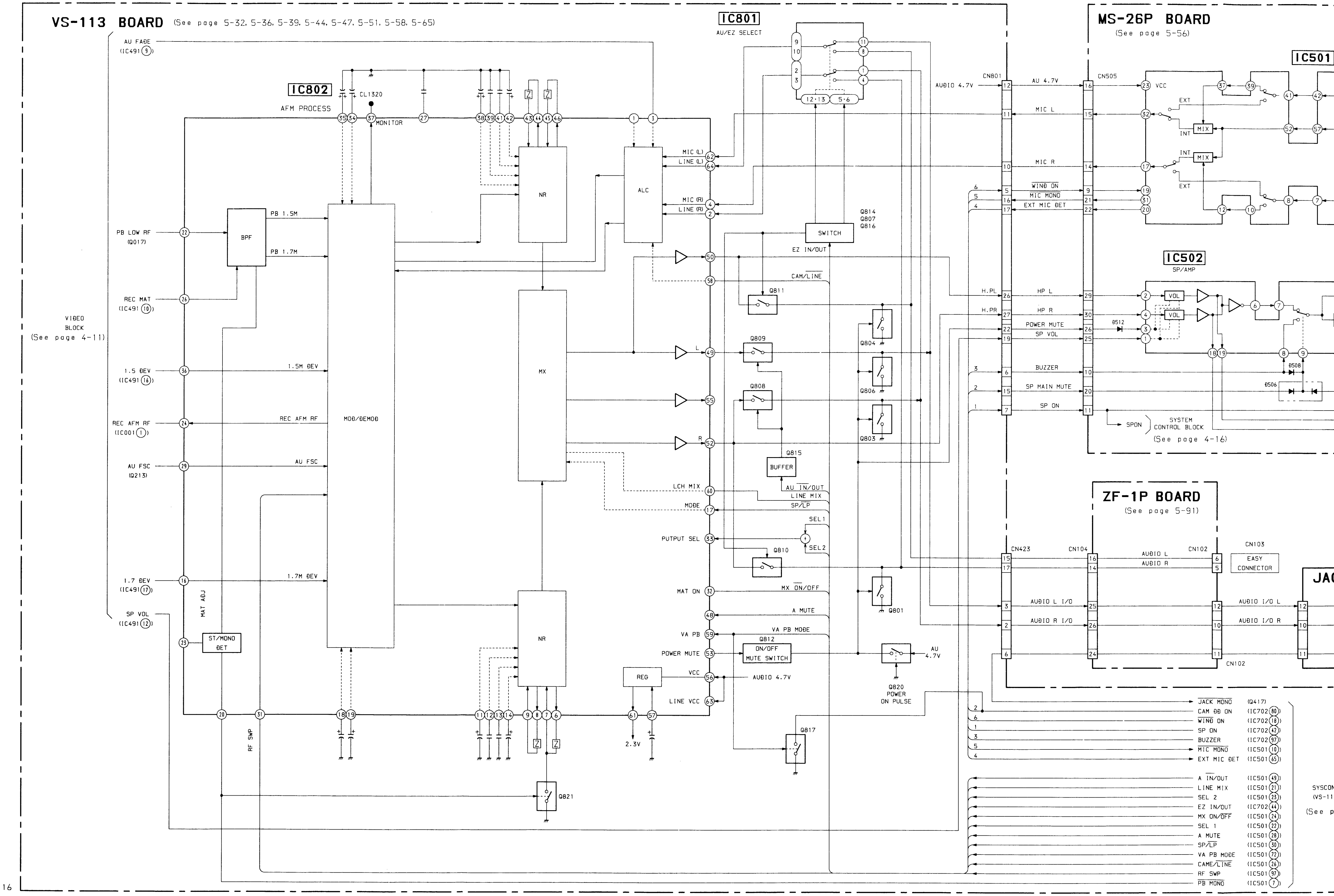

VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
TK-MECHA CHASSIS
IC501
SERVO/SYSTEM CONTROL (MECHA CONTROL)
IC502 (1/4) LOADING MOTOR DRIVE
IC502 TAPE TOP/END DETECT (1/4)
IC502 (1/4)
IC504
EVF BLOCK VC-158 VF-78 (EVF) ⑦ (See page 4-31)
LCD ⑧ BLOCK (PD-61) (See page 4-27)
① CAMERA BLOCK (VC-158) (See page 4-6)
CN421
JOG VD
WRITE/HOLD
STILL/SLOW
BL ON
REVERSE H
REVERSE V
CS LCD DATA
MODECON SCK
DATA TO SLAVE
DATA TO MASTER
WRITE/HOLD
STILL/SLOW
LCD BKLT ON
SS 3.6V
AV REF
AVDD
VDD
VPP
(75) IC501 (40) REC/PB
(4.57MHz)
2.5Vp-p
X501 11.718MHz
XTAL
EXTAL
PB V
CAM VD
FLD
RESET
CS MECHA
DATA TO MASTER
DATA TO SLAVE
MODE CON SCK
(76) IC504 (29) PB
0.4Vp-p
H
Q504
BUFFER
LPF
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
SS3.6V (CN504 (33))
AVDD
DVDD
SP/LP DET
CLOG DET
RF ENV
ATF ERROR
JACK MONO
PB 1.7M DET
MIC MONO
LINE MIX
MX SEL 1
MX SEL 2
MX ON/OFF
CAM/LINE
A MUTE
A IN/OUT
EXT MIC DET
CN801 (16) MIC MONO
IC802 (33) SEL 1
IC802 (33) SEL 2
IC802 (20) PB MONO
IC802 (60) LINE MIX
IC802 (32) MX ON/OFF
CN801 (17) EXT MIC DET
IC802 (48) A MUTE
IC802 (17) SP/LP
IC802 (31) RF SWP
IC802 (59) VA PB MODE
IC802 (58) CAM/LINE
Q815 A IN/OUT
AUDIO BLOCK (See page 4-24)
CN423 (6) JACK MONO
Q417
(See page 4-11) VIDEO BLOCK
IC421 (24) CAM/LINE
UN LOAD
LOAD
LM LIM CONT
LM LIM ON
M SW D
M SW C
M SW B
M SW A
DEW DET
LCD ON
TAPE TOP SENS
TAPE END SENS
JOG
DROPOUT DET
S REEL FG
T REEL FG
TAPE LED ON
REEL HALL CONT
ME/MP SW
HI8 MP SW
REC PROOF SW
1/2 RF SWP
RP PB MODE
FE ON
ME/MP
RF SWP
VTR SYNC
COMP REC
JOG VD
VA PB MODE
V MUTE
SP/LP
V IN/OUT
A IN/OUT
S JACK IN
E/L DET
E/L OUT
EDIT
FSC OFF
CAP ON
MT 5V
VCC
DEC2
DEC1
LIMIT ENABLE
LIMIT OUT
OUT2
OUT1
LCD ON Q974
POWER SUPPLY BLOCK (See page 4-35)
TOP OUT TOP IN
END OUT END IN
Q507 (1/2)
LEVEL SHIFT
BLON
*JOG Q204
JOG
DROP IC001 (15)
(See page 4-11) VIDEO BLOCK
MOTOR UNREG
Q965-967 Q963
5V REG
PS951 0.8A
SR FG
TR FG
SS 3.5V
WAVE SHAPER
WAVE SHAPER
VCC
LED DRIVE
VIDEO 4.7V
1/2 RF SWP IC491 (30), IC001 (21), CN002 (5)
RP PB MODE
FE ON Q018
* ME/MP Q108, IC206 (5), Q76
RF SWP IC201 (46), IC491 (6), IC001 (22), CN002 (4)
VIDEO BLOCK (See page 4-11)
Q503
LEVEL SHIFT
VTR SYNC IC201 (24)
A OUT/IN Q425
COMP REC IC421 (4), Q219, Q425, Q203
JOG VD IC201 (31)
VA PB Q205, 235, 241, IC101 (15)
V MUTE Q422, IC421 (4)
* SP/LP Q013, Q248, IC206 (13)
V IN/OUT Q424, Q212
* EDIT Q235
S IN CN423 (13)
E DET IC101 (29)
E/L Q214
VIDEO BLOCK (See page 4-11)
E DET
E/L
EDIT
FSC OFF Q078, Q259
CAP ON IC101 (48) Q255
VIDEO BLOCK (See page 4-11)
PB LOW RF
CN501
CN503
CN505
CN502
UN LOAD
LOAD
M903 LOADING MOTOR
M
S901 MODE SWITCH
M SW D
M SW C
M SW B
M SW A
DEW (+)
R009
DEW SENSOR
TAPE TOP
TAPE END
TAPE LED (A) 5V
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM (-)
TAPE LED (K)
ME/MP
HI8 MP SW
REC PROOF
CC DOWN SW
Q001 TAPE TOP SENSOR
D001 TAPE LED
Q002 TAPE END SENSOR
H001 S REEL SENSOR
H002 T REEL SENSOR
S002
S001 CC DOWN SW
MP/MP-HG
FP-689 BOARD
FP-316 BOARD
(See page 5-47)

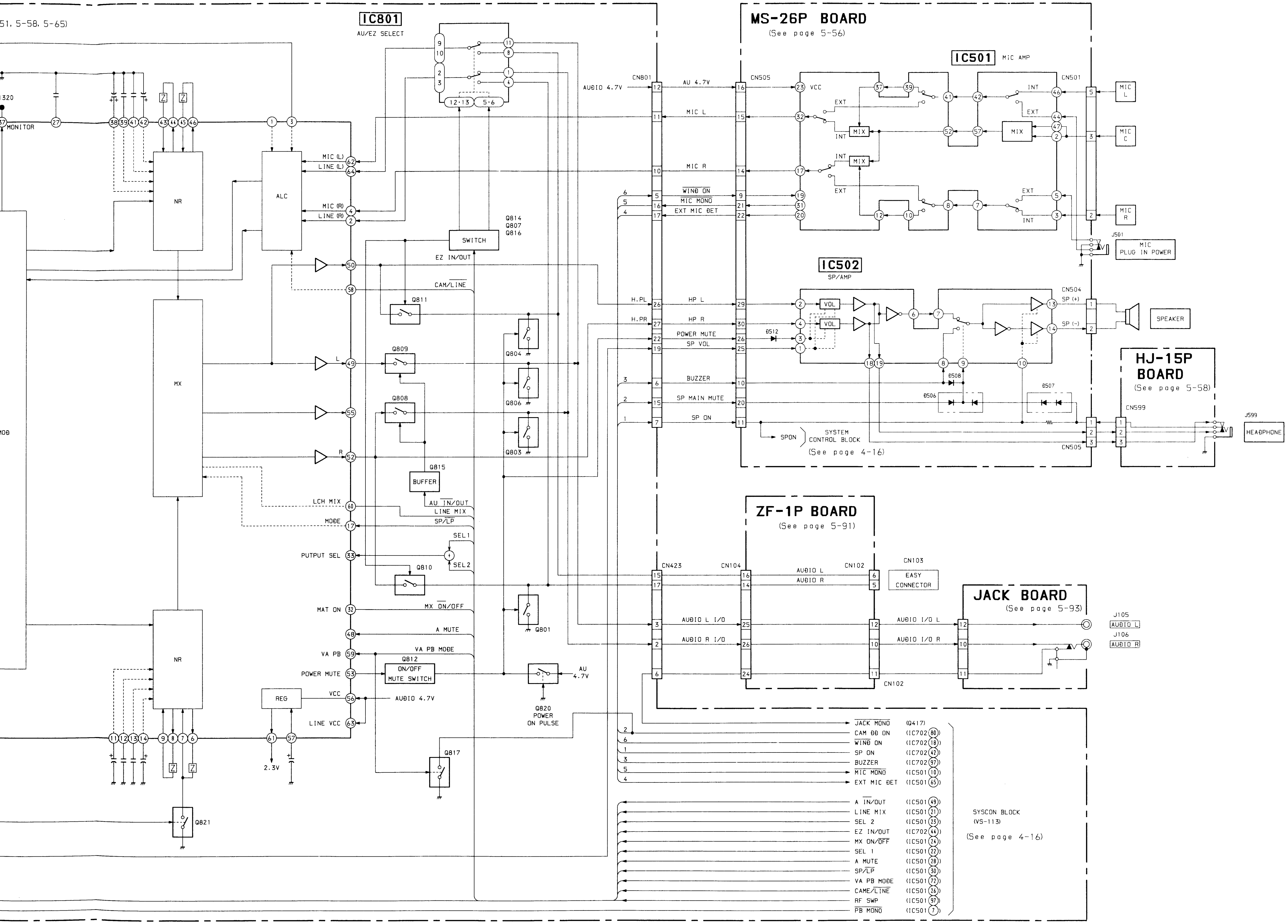
4-5. SERVO BLOCK DIAGRAM


VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
TK-MECHA(2/2)
DRUM
FG
PG
FG (+)
FG/PG COM
PG (-)
CN504
IC502
DRUM FG/ PG WAVE SHAPER
LPF
WAVE SHAPER
V REF
WAVE SHAPER
CN505
SS3.5V
CAPSTAN FG
IC001 (2/2)
CFG Vcc
CFG (+)
CFG GND
CFG (-)
CAPSTAN FG WAVE SHAPER
CAP FG
OFFSET ADJ
CFG OFFSET
IC491 (27)
VIDEO BLOCK
(See page 4-11)
SS BLOCK
IC501 (1/2)
SERVO
DRUM FG
DRUM PWM
DRUM PG
CAPSTAN SERVO
CAP FG
CAP PWM
ATF ERROR
REF PILOT
MECHA CONTROL
CFG HMS
SS 3.5V
A VREF
A VDD
VDD
Vpp
CS TO ATF
DATA TO ATF
ATF SCK
ATF STBY
DRUM ON
DRUM FWD/ RVS
CAP ON
CAP FWD/ RVS
RP PB MODE
5.9M ATF CLK
MUTE 2B Q002
MUTE 1B Q005
MUTE 2A Q004
MUTE 1A Q007
VIDEO BLOCK
(See page 4-11)
RP PB Q012
VIDEO BLOCK
(See page 4-11)
ATT
SS BLOCK
IC503 (1/2)
LPF
PROTECT
0.22V
Q502
BUFFER
CAP ON
DRUM ERROR
CAP ERROR
(80) IC951 (11) PB
16mVp-p
(79) IC951 (6) PB
80mVp-p
DD BLOCK
IC951 (1/2)
DRUM/CAPSTAN PWM DRIVE
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
POWER ON/OFF
VTR D/D ON
(IC702 (79))
OSC
VCC2
MT UNREG
CN951 (3)
Q964
SWITCHING
Q963
SWITCHING
L958
L957
DRUM VS
SYS RESE
SS 3.5V
VTR UNRE
Vcc 2
Vcc 1
DRUM ON
REF
STBY
DRUM RVS
DIR
BRAKE
CONTRO
LOGIC
IC504 (1/2)
ATF SERVO
SS BLOCK
REC/PB
REF PILOT
CLOCK IN
IC001 (63) REC ATF RF
VIDEO BLOCK
(See page 4-11)
Q504
BUFF
SPIN
Q017
PB LOW RF
LPF. AMP
MODULATOR
16KHz BPF
46KHz BPF
LPF
DET
V REF
ERR
DVDD
AVDD
SS 3.5V
CS
SIN
SCLK
STBY
16


-58, 5-65)
TK-MECHA (1/2)
DD BLOCK
IC951 (1/2)
DRUM/CAPSTAN PWM DRIVE
SS BLOCK
IC503 (1/2)
LPF
PROTECT
0.22V
DRUM ERROR
CAP ERROR
Q502
BUFFER
CAP ON
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
POWER ON/OFF
OSC
VCC2
VTR D/D ON (IC702 79)
MT UNREG CN951 3
MT UNREG CN951 3
Q964 SWITCHING
Q963 SWITCHING
L958
L957
80 IC951 11 PB
16mVp-p
79 IC951 8 PB
80mVp-p
DRUM VS
SYS RESET (SYSCON IC501 38)
SS 3.5V
VTR UNREG (CN951 2)
Vcc 2
Vcc 1
COM
VS
DRUM ON
REF
STBY
CONTROL LOGIC
U IN
V IN
W IN
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
DRUM RVS
DIR
BRAKE
I COM
IC503 (1/2)
DRUM MOTOR DRIVE
R544-546 DRUM DRIVE CURRENT SENS
CN504
COM
M901 DRUM MOTOR
U
V
W
ATT
MUTE 2B Q002
MUTE 1B Q005
MUTE 2A Q004
MUTE 1A Q007
VIDEO BLOCK (See page 4-11)
RP PB Q012
VIDEO BLOCK (See page 4-11)
IC504 (1/2)
ATF SERVO
SS BLOCK
REC/PB
REF PILOT
CLOCK IN
LPF
PF. AMP
MODULATOR
16KHz BPF
46KHz BPF
LPF
DET
V REF
ERR
DVDD
AVDD
SS 3.5V
CN505
CAP VS
VTR UNREG CN951 1
CAP ON
CAP FWD/RVS
IC001 (1/2)
CAPSTAN MOTOR DRIVE
VS
VTR UNREG
Vcc
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
120° LOGIC
M902 CAPSTAN MOTOR
CAP U
CAP V
CAP W
STBY
POWER OFF
FRC
HE POWER
VH+
VH-
C HALL Vcc
C HALL GND

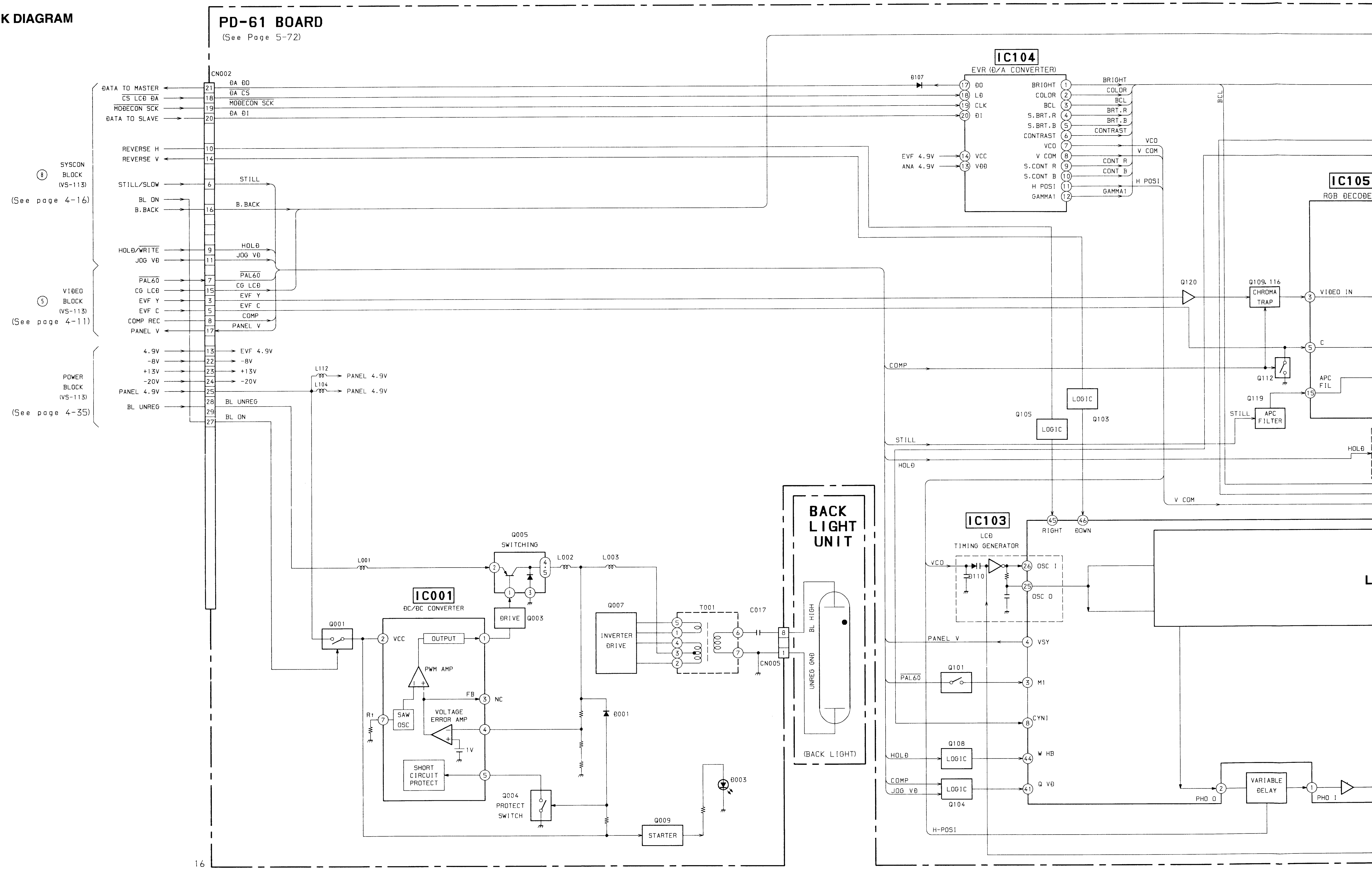
4-6. AUDIO BLOCK DIAGRAM

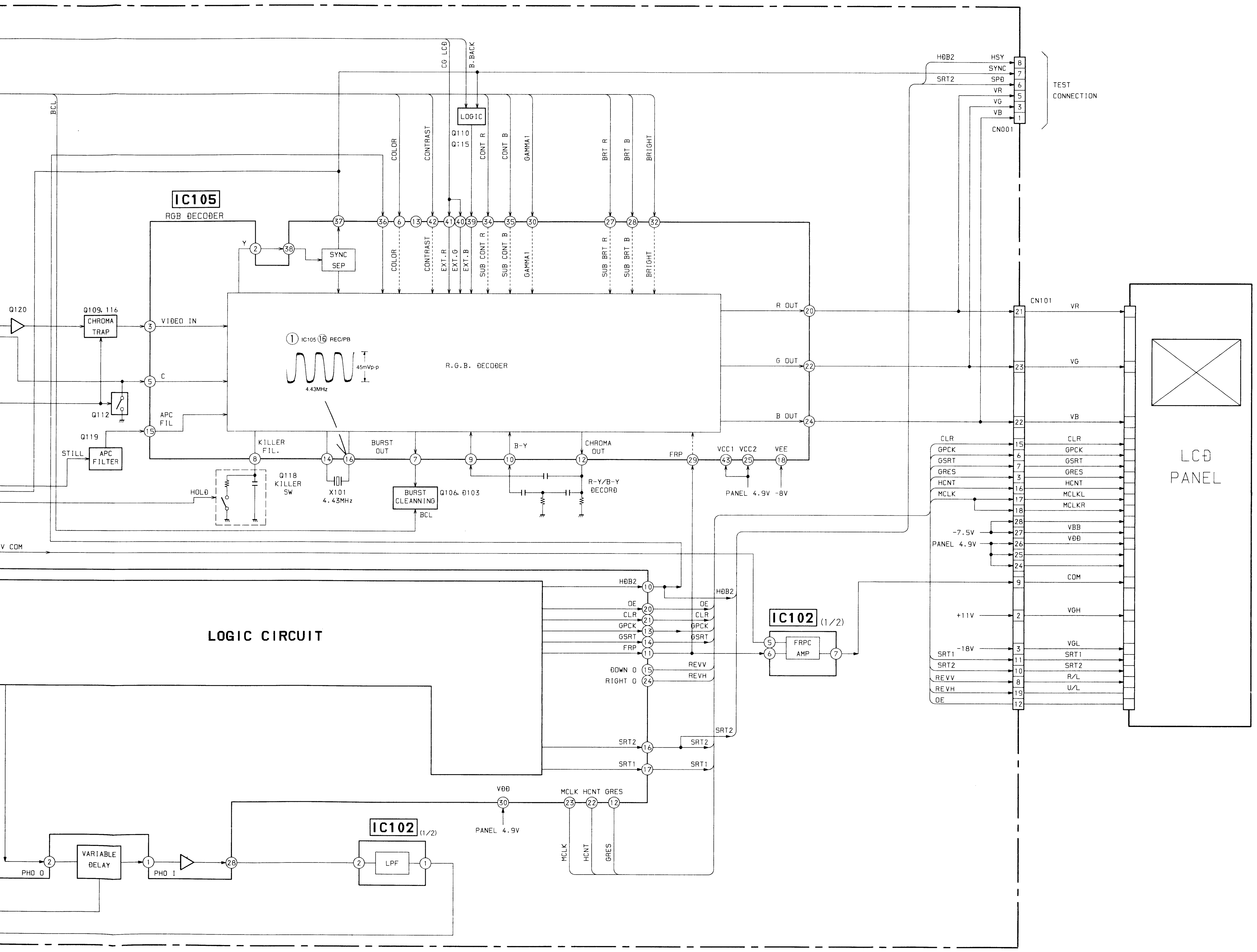

VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 5-65)
AU FADE (IC491 ⑨)
IC802
AFM PROCESS
CL1320
MONITOR
PB LOW RF (Q017)
BPF
PB 1.5M
PB 1.7M
REC MAT (IC491 ⑩)
VIDEO BLOCK (See page 4-11)
1.5 DEV (IC491 ⑯)
1.5M DEV
REC AFM RF (IC001 ①)
REC AFM RF
MOD/DEMOD
AU FSC (Q213)
AU FSC
1.7 DEV (IC491 ⑰)
1.7M DEV
MAT ADJ
SP VOL (IC491 ⑫)
ST/MONO DET
RF SWP
NR
MX
NR
ALC
IC801
AU/EZ SELECT
12·13
5·6
MIC (L)
LINE (L)
MIC (R)
LINE (R)
SWITCH
Q814
Q807
Q816
EZ IN/OUT
CAM/LINE
Q811
Q809
Q808
Q804
Q806
Q803
L
R
Q815
BUFFER
LCH MIX
AU IN/OUT
LINE MIX
MODE
SP/LP
SEL1
PUTPUT SEL
SEL2
Q810
MAT ON
MX ON/OFF
Q801
A MUTE
VA PB
VA PB MODE
Q812
ON/OFF MUTE SWITCH
POWER MUTE
REG
VCC
AUDIO 4.7V
AU 4.7V
LINE VCC
Q820 POWER ON PULSE
2.3V
Q817
Q821
AUDIO 4.7V
CN801
AU 4.7V
MIC L
MIC R
WIND ON
MIC MONO
EXT MIC DET
H.PL
H.PR
HP L
HP R
POWER MUTE
SP VOL
BUZZER
SP MAIN MUTE
SP ON
MS-26P BOARD (See page 5-56)
CN505
IC501
VCC
EXT
INT
MIX
IC502
SP/AMP
VOL
D512
D508
D506
SPON
SYSTEM CONTROL BLOCK (See page 4-16)
ZF-1P BOARD (See page 5-91)
CN423
CN104
CN102
CN103
AUDIO L
AUDIO R
EASY CONNECTOR
AUDIO L I/O
AUDIO R I/O
JA
JACK MONO (Q417)
CAM DD ON (IC702 ⑳)
WIND ON (IC702 ⑱)
SP ON (IC702 ㊷)
BUZZER (IC702 ㊼)
MIC MONO (IC501 ⑩)
EXT MIC DET (IC501 ㊻)
A IN/OUT (IC501 ㊾)
LINE MIX (IC501 ㉑)
SEL 2 (IC501 ㉓)
EZ IN/OUT (IC702 ㊹)
MX ON/OFF (IC501 ㉔)
SEL 1 (IC501 ㉒)
A MUTE (IC501 ㉘)
SP/LP (IC501 ㉚)
VA PB MODE (IC501 (72))
CAME/LINE (IC501 ㉖)
RF SWP (IC501 (97))
PB MONO (IC501 ⑦)
SYSCON (VS-11
(See p
16



51, 5-58, 5-65)
IC801
AU/EZ SELECT
MONITOR
NR
ALC
MX
REG
SWITCH
Q814
Q807
Q816
EZ IN/OUT
CAM/LINE
Q811
Q809
Q808
Q804
Q806
Q803
Q815
BUFFER
AU IN/OUT
LINE MIX
SP/LP
SEL 1
SEL 2
Q810
Q801
Q812
ON/OFF
MUTE SWITCH
Q820
POWER
ON PULSE
Q817
Q821
MIC (L)
LINE (L)
MIC (R)
LINE (R)
LCH MIX
MODE
PUTPUT SEL
MAT ON
MX ON/OFF
A MUTE
VA PB
VA PB MODE
POWER MUTE
VCC
AUDIO 4.7V
LINE VCC
2.3V
AU 4.7V
AUDIO 4.7V
CN801
MIC L
MIC R
WIND ON
MIC MONO
EXT MIC DET
H.PL
H.PR
HP L
HP R
POWER MUTE
SP VOL
BUZZER
SP MAIN MUTE
SP ON
MS-26P BOARD
(See page 5-56)
CN505
IC501
MIC AMP
VCC
EXT
INT
MIX
CN501
MIC L
MIC C
MIC R
J501
MIC PLUG IN POWER
IC502
SP/AMP
VOL
CN504
SP (+)
SP (-)
SPEAKER
D512
D508
D506
D507
SPON
SYSTEM CONTROL BLOCK
(See page 4-16)
HJ-15P BOARD
(See page 5-58)
CN599
J599
HEADPHONE
ZF-1P BOARD
(See page 5-91)
CN423
CN104
CN102
CN103
AUDIO L
AUDIO R
EASY CONNECTOR
AUDIO L I/O
AUDIO R I/O
JACK BOARD
(See page 5-93)
AUDIO I/O L
AUDIO I/O R
J105
AUDIO L
J106
AUDIO R
JACK MONO (Q417)
CAM DD ON (IC702 (80))
WIND ON (IC702 (18))
SP ON (IC702 (42))
BUZZER (IC702 (97))
MIC MONO (IC501 (10))
EXT MIC DET (IC501 (65))
A IN/OUT (IC501 (49))
LINE MIX (IC501 (21))
SEL 2 (IC501 (25))
EZ IN/OUT (IC702 (44))
MX ON/OFF (IC501 (24))
SEL 1 (IC501 (22))
A MUTE (IC501 (28))
SP/LP (IC501 (30))
VA PB MODE (IC501 (72))
CAME/LINE (IC501 (26))
RF SWP (IC501 (97))
PB MONO (IC501 (7))
SYSCON BLOCK
(VS-113)
(See page 4-16)

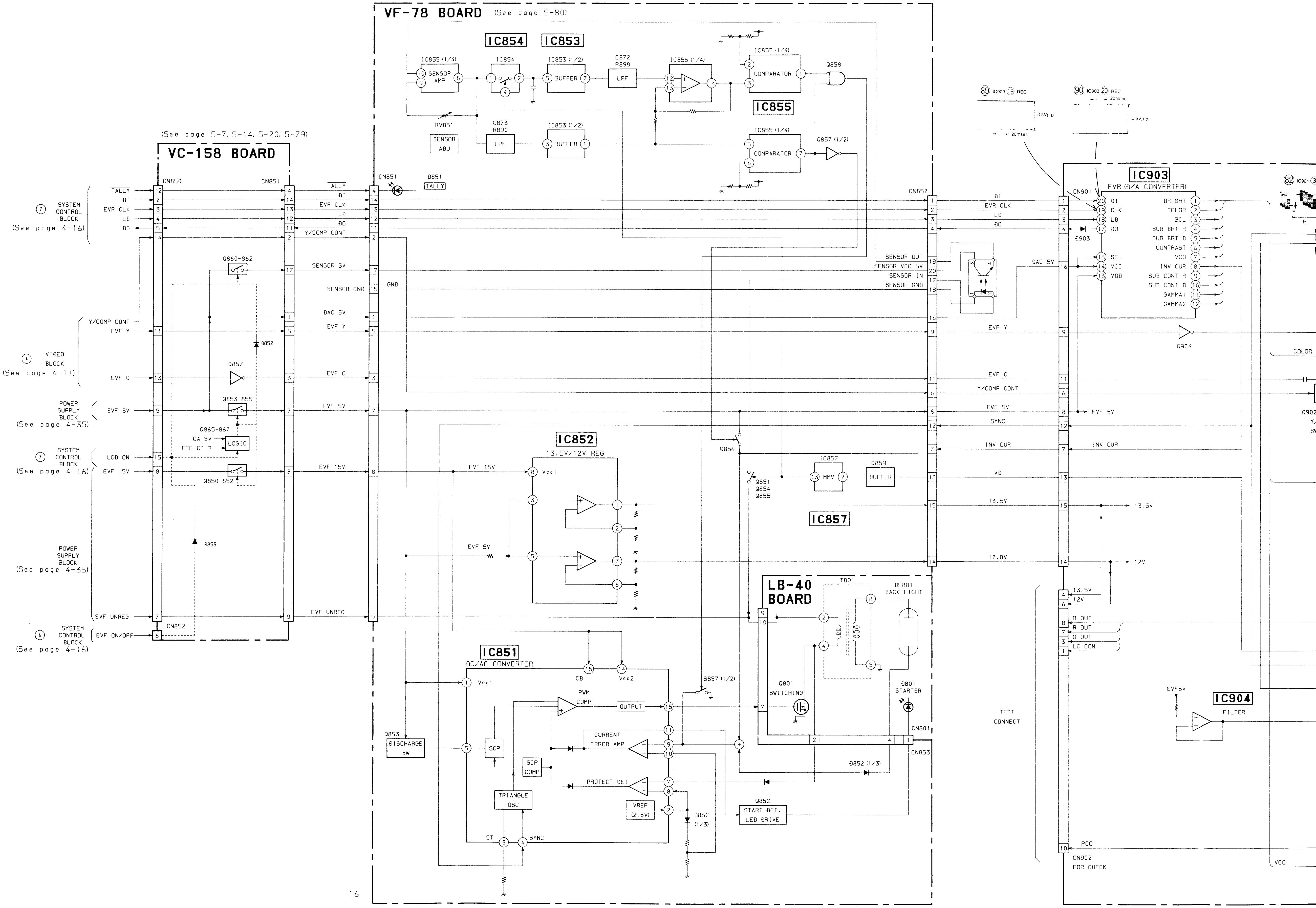
4-7. LCD BLOCK DIAGRAM


PD-61 BOARD
(See Page 5-72)
CN002
DATA TO MASTER
CS LCD DA
MODECON SCK
DATA TO SLAVE
REVERSE H
REVERSE V
SYSCON
⑧ BLOCK
(VS-113)
(See page 4-16)
STILL/SLOW
BL ON
B.BACK
HOLD/WRITE
JOG VD
PAL60
VIDEO
⑤ BLOCK
(VS-113)
(See page 4-11)
CG LCD
EVF Y
EVF C
COMP REC
PANEL V
POWER
BLOCK
(VS-113)
(See page 4-35)
4.9V
-8V
+13V
-20V
PANEL 4.9V
BL UNREG
DA DO
DA CS
MODECON SCK
DA DI
STILL
B.BACK
HOLD
JOG VD
PAL60
CG LCD
EVF Y
EVF C
COMP
PANEL V
EVF 4.9V
-8V
+13V
-20V
L112
L104
PANEL 4.9V
PANEL 4.9V
BL UNREG
BL ON
16
IC104
EVR (D/A CONVERTER)
D107
DO
LD
CLK
DI
EVF 4.9V
ANA 4.9V
VCC
VDD
BRIGHT
COLOR
BCL
S.BRT.R
S.BRT.B
CONTRAST
VCO
V COM
S.CONT R
S.CONT B
H POSI
GAMMA1
BRT.R
BRT.B
CONT R
CONT B
BCL
IC105
RGB DECODE
Q120
Q109, 116
CHROMA TRAP
VIDEO IN
C
COMP
Q112
APC FIL
Q119
STILL
APC FILTER
HOLD
LOGIC
Q105
Q103
V COM
IC103
LCD
TIMING GENERATOR
RIGHT
DOWN
VCO
D110
OSC I
OSC O
PANEL V
VSY
Q101
PAL60
M1
CYNI
Q108
LOGIC
W HB
COMP
JOG VD
LOGIC
Q104
Q VD
H-POSI
PHO O
VARIABLE DELAY
PHO I
BACK LIGHT UNIT
BL HIGH
UNREG GND
(BACK LIGHT)
CN005
C017
T001
Q007
INVERTER DRIVE
L002
L003
Q005
SWITCHING
DRIVE
Q003
L001
IC001
DC/DC CONVERTER
Q001
VCC
OUTPUT
PWM AMP
FB
NC
SAW OSC
VOLTAGE ERROR AMP
Rt
1V
SHORT CIRCUIT PROTECT
Q004
PROTECT SWITCH
D001
Q009
STARTER
D003

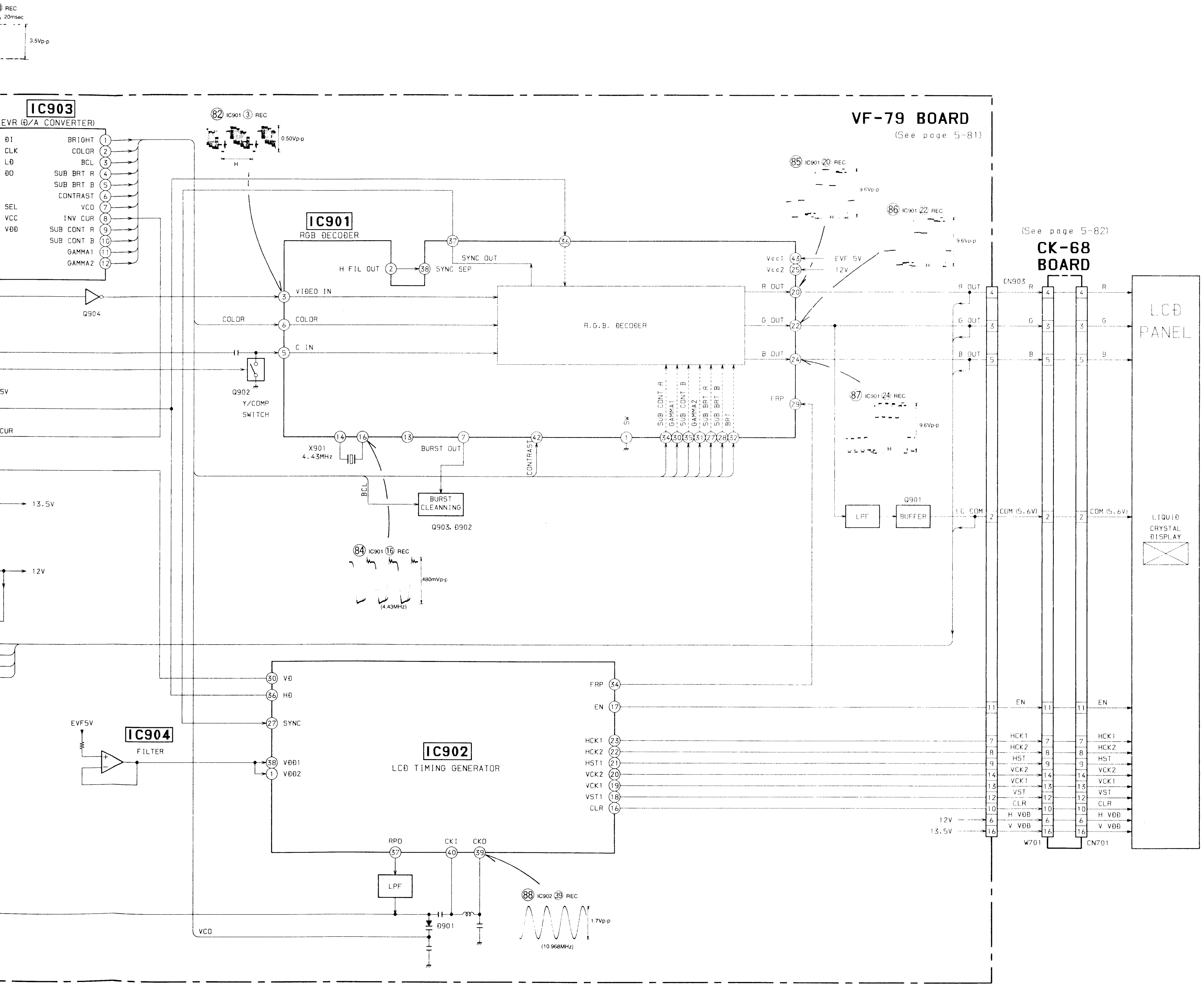

IC105
RGB DECODER
R.G.B. DECODER
① IC105 ⑯ REC/PB
45mVp-p
4.43MHz
SYNC SEP
LOGIC
Q110 Q115
CG LCD
B.BACK
BCL
COLOR
CONTRAST
CONT R
CONT B
GAMMA1
BRT R
BRT B
BRIGHT
EXT.R
EXT.G
EXT.B
SUB CONT R
SUB CONT B
SUB BRT R
SUB BRT B
Y
Q120
Q109, 116
CHROMA TRAP
VIDEO IN
C
APC FIL
Q112
Q119
STILL
APC FILTER
HOLD
KILLER FIL.
Q118 KILLER SW
X101 4.43MHz
BURST OUT
BURST CLEANNING
Q106, D103
BCL
B-Y
CHROMA OUT
R-Y/B-Y DECORD
FRP
VCC1 VCC2
VEE
PANEL 4.9V -8V
R OUT
G OUT
B OUT
V COM
HDB2
HSY
SYNC
SPD
SRT2
VR
VG
VB
CN001
TEST CONNECTION
CN101
CLR
GPCK
GSRT
GRES
HCNT
MCLK
MCLKL
MCLKR
-7.5V
PANEL 4.9V
VBB
VDD
COM
+11V
VGH
-18V
VGL
SRT1
SRT2
REVV
REVH
OE
R/L
U/L
LCD PANEL
LOGIC CIRCUIT
HDB2
OE
CLR
GPCK
GSRT
FRP
DOWN 0
RIGHT 0
REVV
REVH
SRT2
SRT1
IC102 (1/2)
FRPC AMP
VDD
PANEL 4.9V
MCLK HCNT GRES
VARIABLE DELAY
PHO 0
PHO I
IC102 (1/2)
LPF

LCD BLOCK DIAGRAM

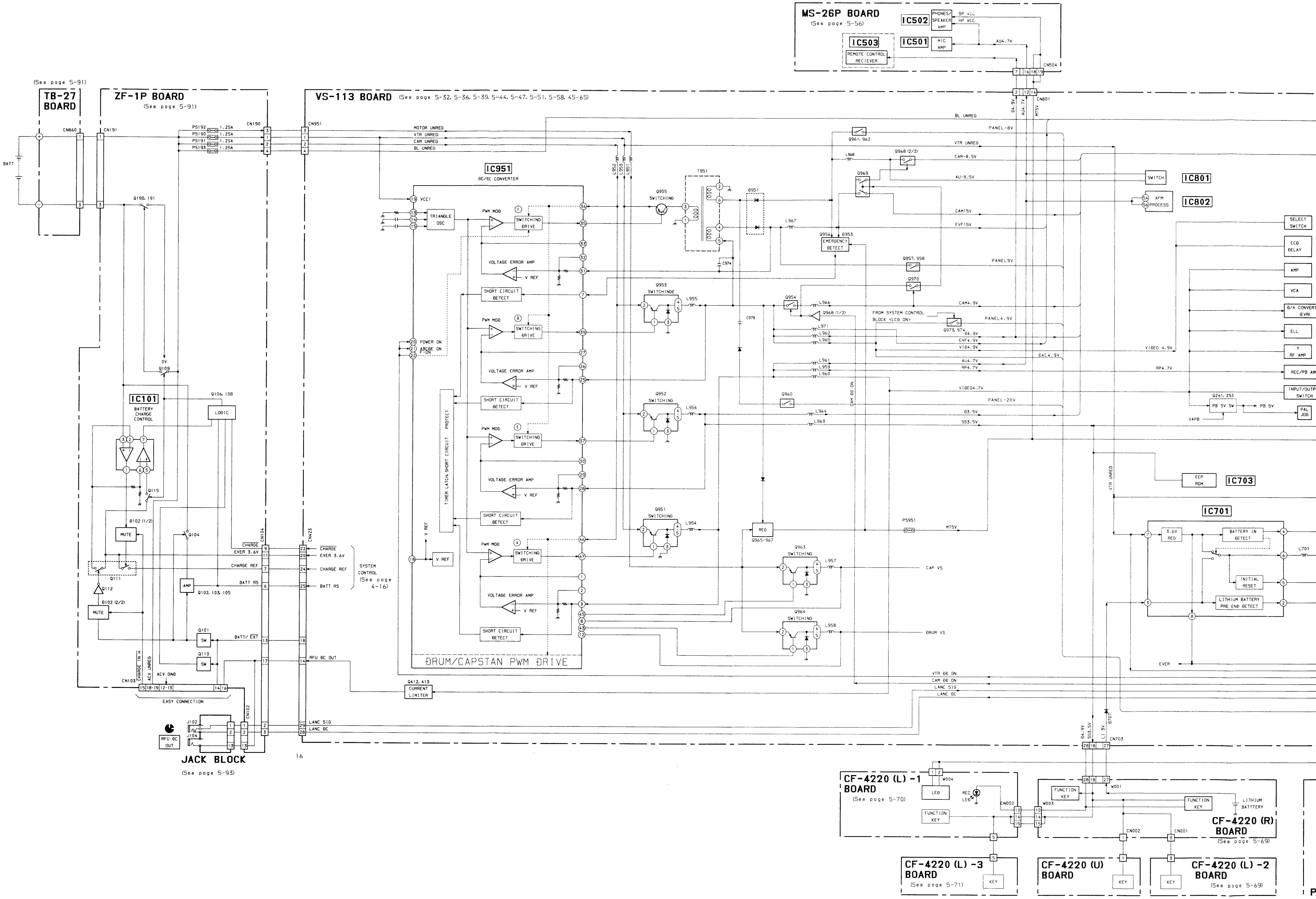
4-8. EVF BLOCK DIAGRAM

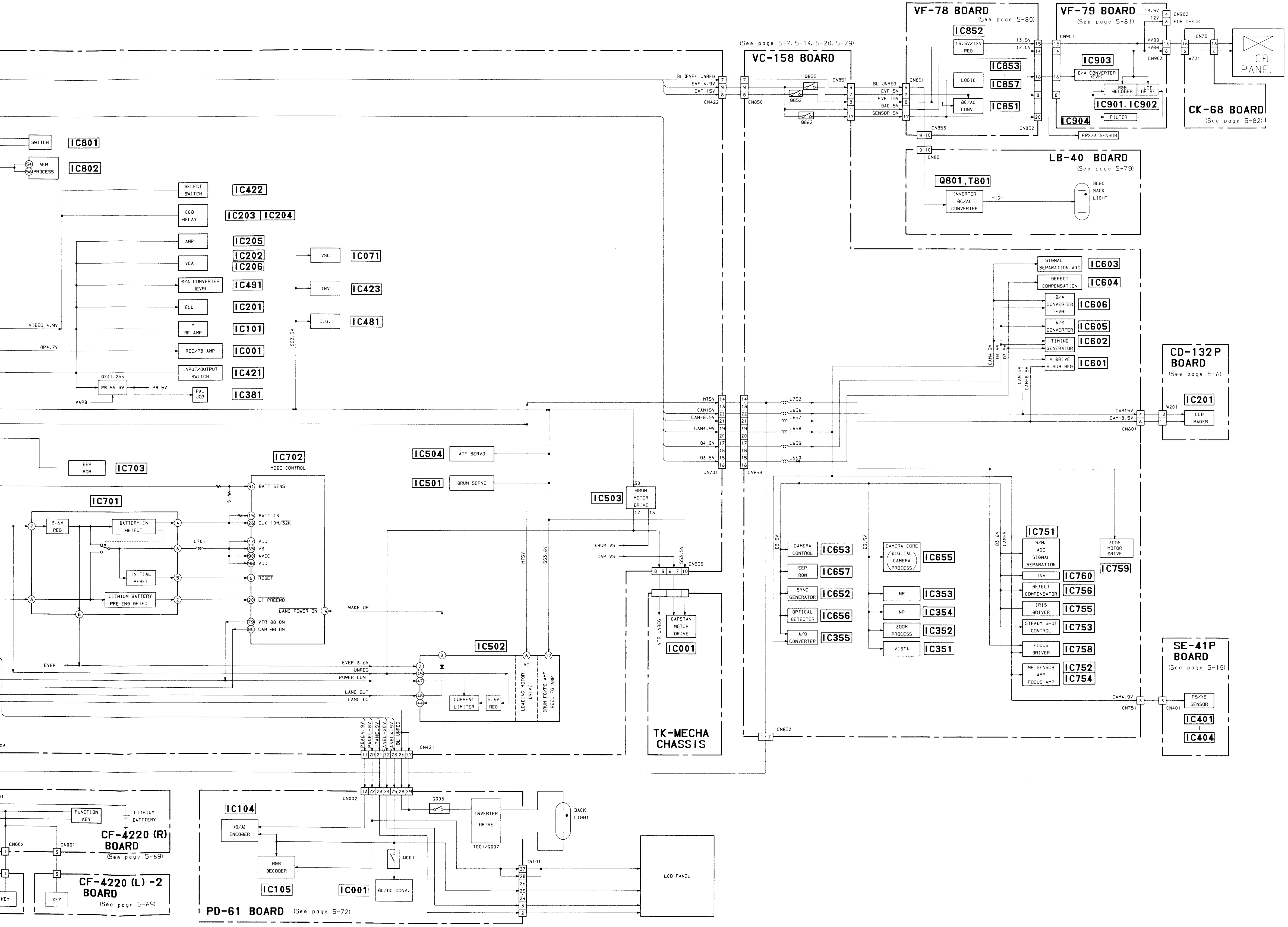


VF-78 BOARD (See page 5-80)
VC-158 BOARD
(See page 5-7, 5-14, 5-20, 5-79)
IC854
IC853
IC855
IC852
13.5V/12V REG
IC851
DC/AC CONVERTER
IC857
LB-40 BOARD
IC903
EVR (D/A CONVERTER)
IC904
FILTER
IC855 (1/4)
SENSOR AMP
IC853 (1/2)
BUFFER
C872
R898
LPF
C873
R890
COMPARATOR
Q858
Q857 (1/2)
RV851
SENSOR ADJ
CN850
CN851
CN852
CN853
CN801
CN901
CN902
FOR CHECK
D851
TALLY
DI
EVR CLK
LD
DO
Y/COMP CONT
SENSOR 5V
SENSOR GND
GND
DAC 5V
EVF Y
EVF C
EVF 5V
LCD ON
EVF 15V
EVF UNREG
EVF ON/OFF
SENSOR OUT
SENSOR VCC 5V
SENSOR IN
SYNC
INV CUR
VD
13.5V
12.0V
12V
Q860-862
Q852
Q857
Q853-855
Q865-867
CA 5V
EFE CT B
LOGIC
Q850-852
D853
SYSTEM CONTROL BLOCK (See page 4-16)
VIDEO BLOCK (See page 4-11)
POWER SUPPLY BLOCK (See page 4-35)
Q856
Q851
Q854
Q855
MMV
Q859
BUFFER
Vcc1
Vcc2
CB
PWM COMP
OUTPUT
CURRENT ERROR AMP
PROTECT DET
VREF (2.5V)
SCP
SCP COMP
TRIANGLE OSC
CT
SYNC
Q853
DISCHARGE SW
S857 (1/2)
D852 (1/3)
Q852
START DET. LED DRIVE
T801
BL801
BACK LIGHT
Q801
SWITCHING
D801
STARTER
TEST CONNECT
D903
SEL
VCC
VDD
BRIGHT
COLOR
BCL
SUB BRT R
SUB BRT B
CONTRAST
VCO
INV CUR
SUB CONT R
SUB CONT B
GAMMA1
GAMMA2
Q904
Q902
B OUT
R OUT
G OUT
LC COM
PCO
EVF5V
89 IC903 19 REC
90 IC903 20 REC
3.5Vp-p
20msec
82 IC901
16


VF-79 BOARD
(See page 5-81)
CK-68 BOARD
(See page 5-82)
IC903
EVR (D/A CONVERTER)
DI
CLK
LD
DO
SEL
VCC
VDD
BRIGHT
COLOR
BCL
SUB BRT R
SUB BRT B
CONTRAST
VCO
INV CUR
SUB CONT R
SUB CONT B
GAMMA1
GAMMA2
IC901
RGB DECODER
R.G.B. DECODER
H FIL OUT
SYNC SEP
SYNC OUT
VIDEO IN
COLOR
C IN
Q904
Q902
Y/COMP SWITCH
X901
4.43MHz
BURST OUT
BURST CLEANNING
Q903, D902
BCL
CONTRAST
SW
SUB CONT A
GAMMA1
SUB CONT B
GAMMA2
SUB BRT R
SUB BRT B
BRT
Vcc1
Vcc2
EVF 5V
12V
R OUT
G OUT
B OUT
FRP
LPF
Q901
BUFFER
LC COM
COM (5.6V)
CN903
W701
CN701
LCD PANEL
LIQUID CRYSTAL DISPLAY
R
G
B
EN
HCK1
HCK2
HST
VCK2
VCK1
VST
CLR
H VDD
V VDD
12V
13.5V
IC902
LCD TIMING GENERATOR
VD
HD
SYNC
VDD1
VDD2
FRP
EN
HCK1
HCK2
HST1
VCK2
VCK1
VST1
CLR
RPD
CKI
CKO
LPF
D901
VCO
IC904
FILTER
EVF5V
5V
CUR
13.5V
12V
REC
20msec
3.5Vp-p
82 IC901 3 REC
0.50Vp-p
H
84 IC901 16 REC
480mVp-p
(4.43MHz)
85 IC901 20 REC
9.6Vp-p
86 IC901 22 REC
9.6Vp-p
87 IC901 24 REC
9.6Vp-p
88 IC902 39 REC
1.7Vp-p
(10.968MHz)

4-9. POWER BLOCK DIAGRAM


TB-27 BOARD
(See page 5-91)
ZF-1P BOARD
(See page 5-91)
VS-113 BOARD (See page 5-32, 5-36, 5-39, 5-44, 5-47, 5-51, 5-58, 45-65)
MS-26P BOARD
(See page 5-56)
IC502
PHONES/ SPEAKER AMP
SP VCC
HP VCC
IC503
REMOTE CONTROL RECIEVER
IC501
MIC AMP
AU4.7V
CN504
CN801
BATT
CN860
CN191
CN190
CN951
PS192 1.25A
PS190 1.25A
PS191 1.25A
PS193 1.25A
MOTOR UNREG
VTR UNREG
CAM UNREG
BL UNREG
IC951
DC/DC CONVERTER
VCC1
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
V REF
SHORT CIRCUIT DETECT
POWER ON
ABCDE ON
F ON
TIMER LATCH SHORT CIRCUIT PROTECT
DRUM/CAPSTAN PWM DRIVE
L952
L953
L951
Q955 SWITCHING
T951
D951
L967
Q956, Q953 EMERGENCY DETECT
Q953 SWITCHING
L955
Q952 SWITCHING
L956
Q951 SWITCHING
L954
Q963 SWITCHING
L957
Q964 SWITCHING
L958
REG
Q965-967
Q961, 962
Q968 (2/2)
Q969
Q957, 958
Q970
Q954
Q968 (1/2)
Q973, 974
Q960
L966
L971
L962
L965
L961
L959
L960
L964
L963
PS951
MT5V
CAP VS
DRUM VS
PANEL-8V
CAM-8.5V
AU-8.5V
CAM15V
EVF15V
PANEL9V
CAM4.9V
PANEL4.9V
D4.9V
EVF4.9V
VIO4.9V
DAC4.9V
AU4.7V
RP4.7V
VIDEO4.7V
PANEL-20V
D3.5V
SS3.5V
FROM SYSTEM CONTROL BLOCK (LCD ON)
CAM DD ON
SWITCH
IC801
AFM PROCESS
IC802
SELECT SWITCH
CCD DELAY
AMP
VCA
D/A CONVERT (EVR)
ELL
Y RF AMP
REC/PB AM
INPUT/OUTP SWITCH
PAL JOG
VIDEO 4.9V
RP4.7V
Q241, 253
PB 5V SW
PB 5V
VAPB
VTR UNREG
EEP ROM
IC703
IC701
3.6V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
L701
EVER
VTR DD ON
CAM DD ON
LANC SIG
LANC DC
Q412, 413 CURRENT LIMITER
D4.9V
SS3.5V
LI 3V
D707
CN703
IC101
BATTERY CHARGE CONTROL
LOGIC
Q104, 108
Q190, 191
DV
Q109
Q115
Q102 (1/2)
MUTE
Q104
Q111
Q112
Q102 (2/2)
MUTE
AMP
Q102, 103, 105
Q101 SW
Q110 SW
CN104
CN423
CHARGE
EVER 3.6V
CHARGE REF
BATT RS
BATT/EXT
RFU DC OUT
SYSTEM CONTROL (See page 4-16)
CHARGE IN H
ACV UNREG
ACV GND
CN103
EASY CONNECTION
CN102
J102
J104
RFU DC OUT
JACK BLOCK
(See page 5-93)
16
CF-4220 (L) -1 BOARD
(See page 5-70)
LED
REC LED
FUNCTION KEY
W004
CN002
CF-4220 (R) BOARD
(See page 5-69)
FUNCTION KEY
W003
W001
LITHIUM BATTERY
CN002
CN001
CF-4220 (L) -3 BOARD
(See page 5-71)
KEY
CF-4220 (U) BOARD
KEY
CF-4220 (L) -2 BOARD
(See page 5-69)
KEY

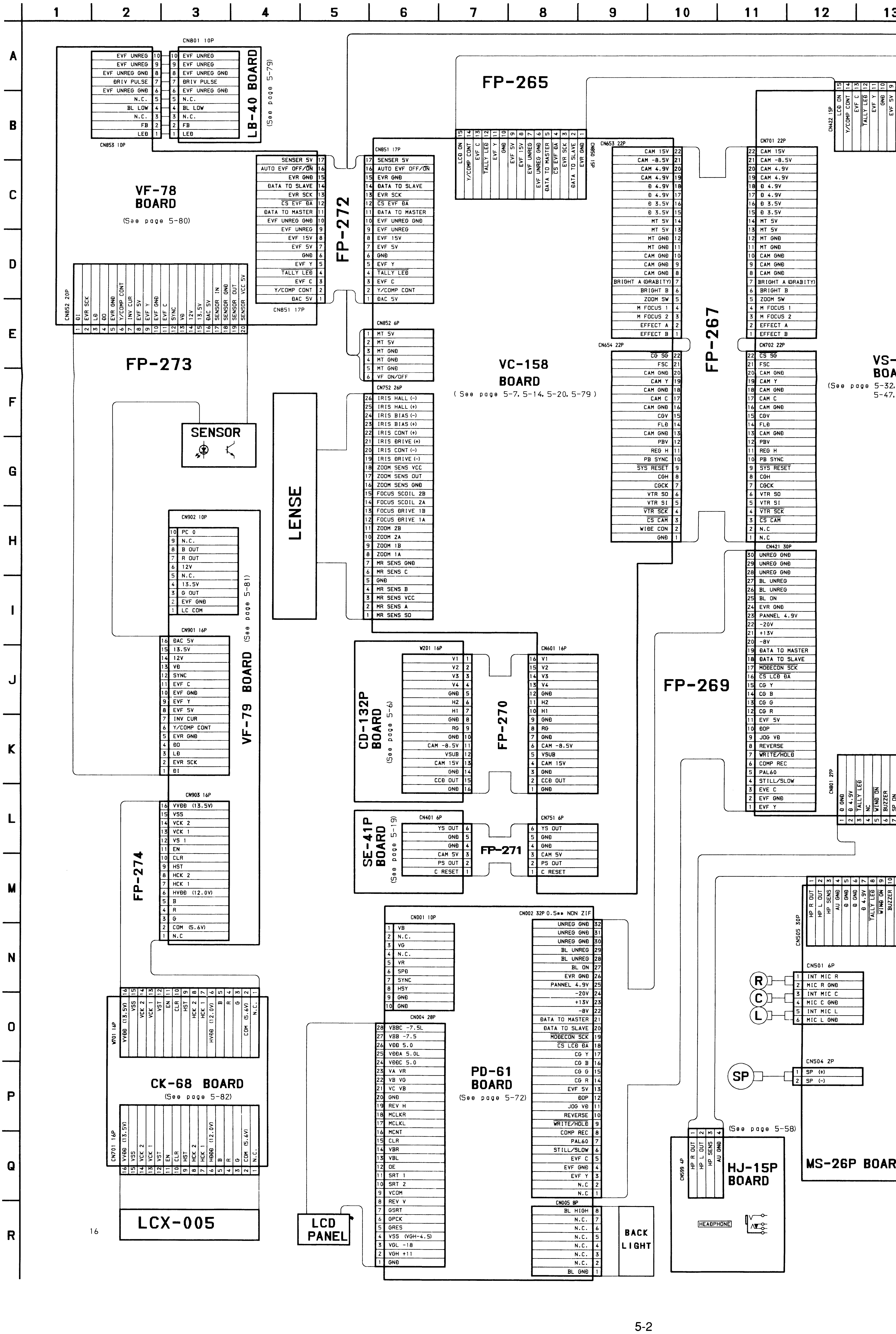

VF-78 BOARD
(See page 5-80)
IC852
13.5V/12V REG
IC853
IC857
LOGIC
DC/AC CONV.
IC851
VF-79 BOARD
(See page 5-81)
CN902 FOR CHECK
IC903
D/A CONVERTER (EVF)
RGB DECODER
LCD DRIVE
IC901, IC902
IC904
FILTER
FP273 SENSOR
LCD PANEL
CK-68 BOARD
(See page 5-82)
(See page 5-7, 5-14, 5-20, 5-79)
VC-158 BOARD
BL (EVF) UNREG
EVF 4.9V
EVF 15V
Q855
Q852
Q862
BL UNREG
EVF 5V
EVF 15V
DAC 5V
SENSOR 5V
CN422
CN850
CN851
CN853
CN852
CN801
LB-40 BOARD
(See page 5-79)
Q801, T801
INVERTER DC/AC CONVERTER
HIGH
BL801 BACK LIGHT
SWITCH
IC801
AFM PROCESS
IC802
SELECT SWITCH
IC422
CCD DELAY
IC203 IC204
AMP
IC205
VCA
IC202
IC206
D/A CONVERTER (EVR)
IC491
ELL
IC201
Y RF AMP
IC101
REC/PB AMP
IC001
INPUT/OUTPUT SWITCH
IC421
PAL JOG
IC381
VSC
IC071
INV
IC423
C.G.
IC481
VIDEO 4.9V
RP4.7V
Q241, 253
PB 5V SW
PB 5V
VAPB
SS3.5V
SIGNAL SEPARATION AGC
IC603
DEFECT COMPENSATION
IC604
D/A CONVERTER (EVR)
IC606
A/D CONVERTER
IC605
TIMING GENERATOR
IC602
V DRIVE V SUB REG
IC601
CD-132P BOARD
(See page 5-6)
IC201
CCD IMAGER
CAM15V
CAM-8.5V
CN601
MT5V
CAM4.9V
D4.9V
D3.5V
CN701
CN653
L752
L656
L657
L658
L659
L660
EEP ROM
IC703
IC702
MODE CONTROL
BATT SENS
BATT IN
CLK 10M/32K
VCC
V3
AVCC
RESET
LI PREEND
LANC POWER ON
VTR DD ON
CAM DD ON
WAKE UP
IC701
3.6V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
L701
IC504
ATF SERVO
IC501
DRUM SERVO
IC503
DRUM MOTOR DRIVE
DRUM VS
CAP VS
CN505
VTR UNREG
CAPSTAN MOTOR DRIVE
IC001
TK-MECHA CHASSIS
EVER
EVER 3.6V
UNREG
POWER CONT
LANC OUT
LANC DC
IC502
CURRENT LIMITER
5.6V REG
LOADING MOTOR DRIVE
DRUM FG/PG AMP REEL FG AMP
VC
CAMERA CONTROL
IC653
EEP ROM
IC657
SYNC GENERATOR
IC652
OPTICAL DETECTER
IC656
A/D CONVERTER
IC355
CAMERA CORE (DIGITAL CAMERA PROCESS)
IC655
NR
IC353
NR
IC354
ZOOM PROCESS
IC352
VISTA
IC351
IC751
S/H AGC SIGNAL SEPARATION
INV
IC760
DETECT COMPENSATOR
IC756
IRIS DRIVER
IC755
STEADY SHOT CONTROL
IC753
FOCUS DRIVER
IC758
MR SENSOR AMP FOCUS AMP
IC752
IC754
ZOOM MOTOR DRIVE
IC759
SE-41P BOARD
(See page 5-19)
PS/YS SENSOR
IC401
IC404
CN751
CN401
CN421
PBAC4.9V
PANEL-8V
PANEL15V
PANEL-20V
PANEL4.9V
BL UNREG
CN002
CF-4220 (R) BOARD
(See page 5-69)
FUNCTION KEY
LITHIUM BATTERY
CN001
CF-4220 (L)-2 BOARD
(See page 5-69)
KEY
IC104
(E/A) ENCODER
RGB DECODER
IC105
IC001
DC/DC CONV.
Q005
Q001
INVERTER DRIVE
T001/Q007
BACK LIGHT
CN101
LCD PANEL
PD-61 BOARD (See page 5-72)

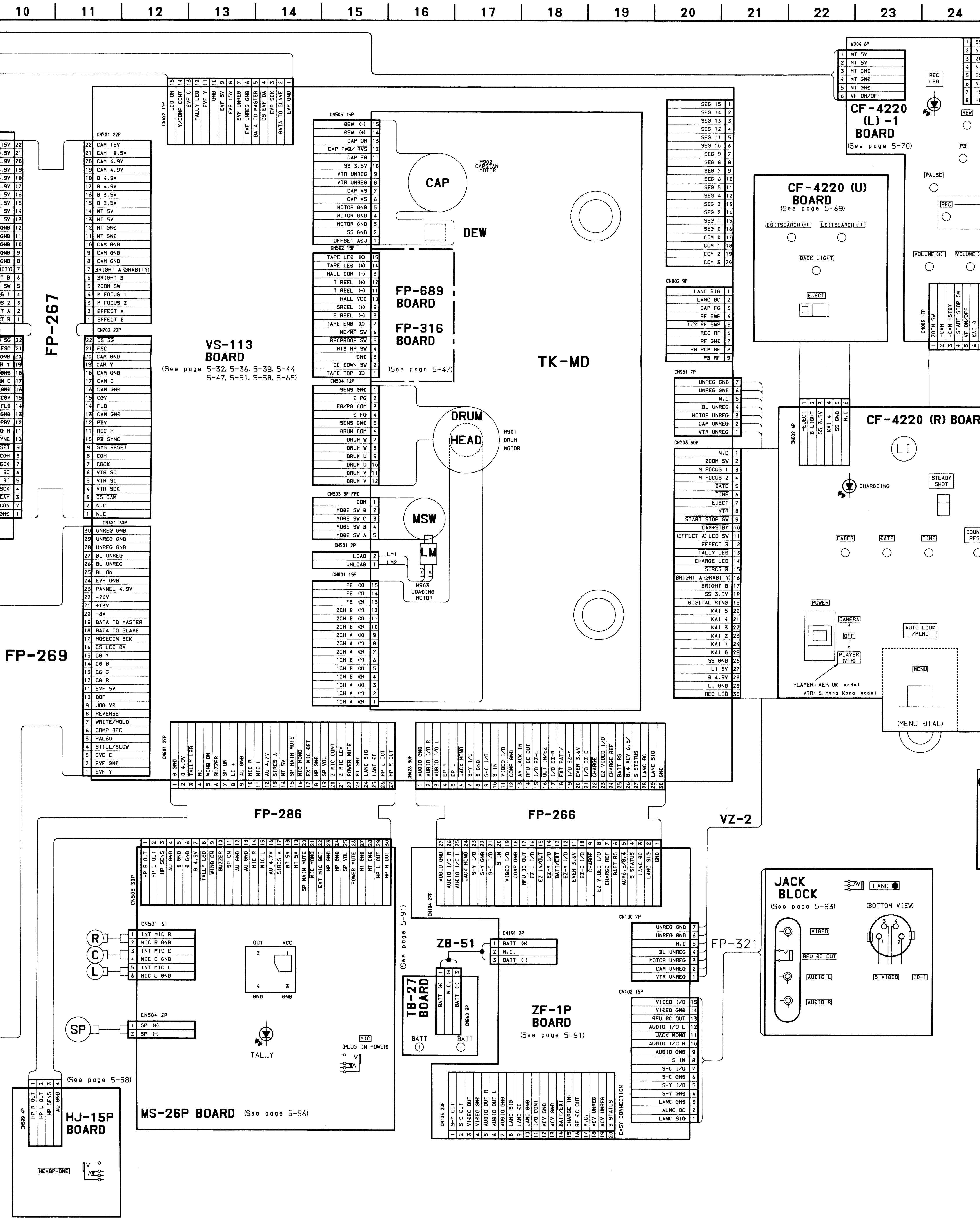
POWER BLOCK DIAGRAM

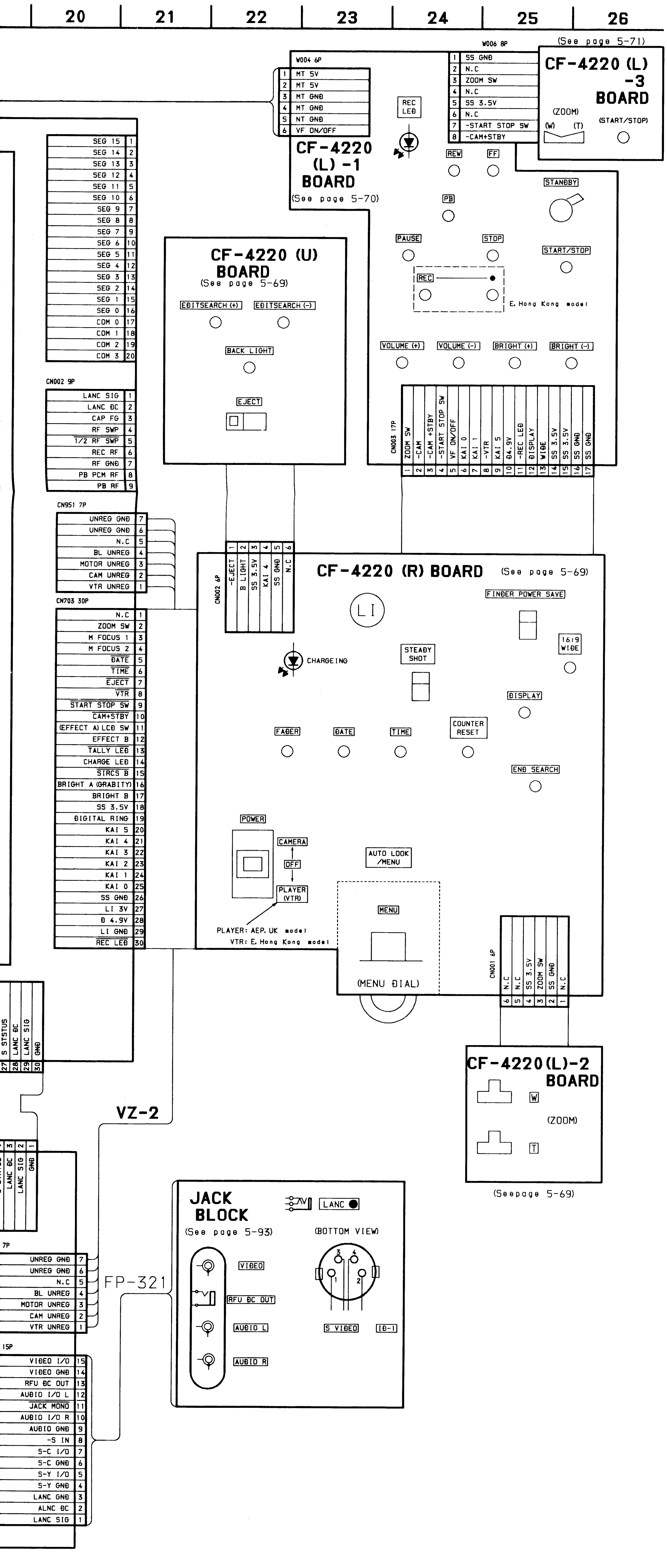
SECTION 5

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

5-1. FRAME SCHEMATIC DIAGRAM


LB-40 BOARD (See page 5-79)
CN801 10P
CN853 10P
VF-78 BOARD (See page 5-80)
CN852 20P
CN851 17P
FP-272
FP-273
FP-265
FP-267
FP-269
FP-270
FP-271
FP-274
SENSOR
LENSE
VC-158 BOARD (See page 5-7, 5-14, 5-20, 5-79)
CN852 6P
CN752 26P
CN653 22P
CN654 22P
CN701 22P
CN702 22P
CN421 30P
CN422 15P
CN801 27P
VF-79 BOARD (See page 5-81)
CN902 10P
CN901 16P
CN903 16P
CD-132P BOARD (See page 5-6)
W201 16P
CN601 16P
SE-41P BOARD (See page 5-19)
CN401 6P
CN751 6P
CK-68 BOARD (See page 5-82)
W701 16P
CN701 16P
LCX-005
LCD PANEL
PD-61 BOARD (See page 5-72)
CN001 10P
CN004 28P
CN002 32P 0.5mm NON ZIF
CN005 8P
BACK LIGHT
HJ-15P BOARD (See page 5-58)
CN599 4P
HEADPHONE
MS-26P BOARD
CN505 30P
CN501 6P
CN504 2P
R
C
L
SP
VS-
BOA
(See page 5-32, 5-47,
1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
16


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
FP-267
FP-269
VS-113
BOARD
(See page 5-32, 5-36, 5-39, 5-44
5-47, 5-51, 5-58, 5-65)
CN701 22P
CN702 22P
CN421 30P
CN422 15P
CN505 15P
CN502 15P
CN504 12P
CN503 5P FPC
CN501 2P
CN001 15P
CAP
M902
CAPSTAN
MOTOR
DEW
FP-689
BOARD
FP-316
BOARD
(See page 5-47)
DRUM
HEAD
M901
DRUM
MOTOR
MSW
LM
LM1
LM2
M903
LOADING
MOTOR
TK-MD
CN002 9P
CN951 7P
CN703 30P
W004 6P
REC
LED
CF-4220
(L)-1
BOARD
(See page 5-70)
REW
PB
PAUSE
REC
CF-4220 (U)
BOARD
(See page 5-69)
EDITSEARCH (+)
EDITSEARCH (-)
BACK LIGHT
EJECT
VOLUME (+)
VOLUME (-
CN003 17P
CN002 6P
CF-4220 (R) BOAR
LI
CHARGEING
STEADY
SHOT
FADER
DATE
TIME
COUN
RES
POWER
CAMERA
OFF
PLAYER
(VTR)
PLAYER: AEP, UK model
VTR: E, Hong Kong model
AUTO LOOK
/MENU
MENU
(MENU DIAL)
CN801 27P
CN423 30P
FP-286
FP-266
VZ-2
CN505 30P
CN501 6P
R
C
L
INT MIC R
MIC R GND
INT MIC C
MIC C GND
INT MIC L
MIC L GND
OUT
VCC
GND
GND
CN504 2P
SP
SP (+)
SP (-)
TALLY
MIC
(PLUG IN POWER)
MS-26P BOARD (See page 5-56)
(See page 5-58)
CN599 4P
HP R OUT
HP L OUT
HP SENS
AU GND
HJ-15P
BOARD
HEADPHONE
CN104 27P
(See page 5-91)
ZB-51
CN191 3P
BATT (+)
N.C.
BATT (-)
TB-27
BOARD
CN860 3P
BATT
ZF-1P
BOARD
(See page 5-91)
CN190 7P
CN102 15P
CN103 20P
EASY CONNECTION
FP-321
JACK
BLOCK
(See page 5-93)
LANC
(BOTTOM VIEW)
VIDEO
RFU DC OUT
AUDIO L
AUDIO R
S VIDEO
[6-1]


20
21
22
23
24
25
26
CF-4220 (L) -1 BOARD
(See page 5-70)
W004 6P
1 MT 5V
2 MT 5V
3 MT GND
4 MT GND
5 NT GND
6 VF ON/OFF
REC LED
W006 8P
1 SS GND
2 N.C
3 ZOOM SW
4 N.C
5 SS 3.5V
6 N.C
7 -START STOP SW
8 -CAM+STBY
CF-4220 (L) -3 BOARD
(See page 5-71)
(ZOOM)
(W) (T)
(START/STOP)
REW
FF
PB
STANDBY
PAUSE
STOP
START/STOP
REC
E. Hong Kong model
VOLUME (+)
VOLUME (-)
BRIGHT (+)
BRIGHT (-)
CN003 17P
1 ZOOM SW
2 -CAM
3 -CAM +STBY
4 -START STOP SW
5 VF ON/OFF
6 KAI 0
7 KAI 1
8 -VTR
9 KAI 5
10 D4.9V
11 -REC LED
12 DISPLAY
13 WIDE
14 SS 3.5V
15 SS 3.5V
16 SS GND
17 SS GND
CF-4220 (U) BOARD
(See page 5-69)
EDITSEARCH (+)
EDITSEARCH (-)
BACK LIGHT
EJECT
SEG 15 1
SEG 14 2
SEG 13 3
SEG 12 4
SEG 11 5
SEG 10 6
SEG 9 7
SEG 8 8
SEG 7 9
SEG 6 10
SEG 5 11
SEG 4 12
SEG 3 13
SEG 2 14
SEG 1 15
SEG 0 16
COM 0 17
COM 1 18
COM 2 19
COM 3 20
CN002 9P
LANC SIG 1
LANC DC 2
CAP FG 3
RF SWP 4
1/2 RF SWP 5
REC RF 6
RF GND 7
PB PCM RF 8
PB RF 9
CN951 7P
UNREG GND 7
UNREG GND 6
N.C 5
BL UNREG 4
MOTOR UNREG 3
CAM UNREG 2
VTR UNREG 1
CN703 30P
N.C 1
ZOOM SW 2
M FOCUS 1 3
M FOCUS 2 4
DATE 5
TIME 6
EJECT 7
VTR 8
START STOP SW 9
CAM+STBY 10
(EFFECT A) LCD SW 11
EFFECT B 12
TALLY LED 13
CHARGE LED 14
SIRCS B 15
BRIGHT A (GRABITY) 16
BRIGHT B 17
SS 3.5V 18
DIGITAL RING 19
KAI 5 20
KAI 4 21
KAI 3 22
KAI 2 23
KAI 1 24
KAI 0 25
SS GND 26
LI 3V 27
D 4.9V 28
LI GND 29
REC LED 30
CN002 6P
1 -EJECT
2 B LIGHT
3 SS 3.5V
4 KAI 4
5 SS GND
6 N.C
CF-4220 (R) BOARD (See page 5-69)
FINDER POWER SAVE
LI
CHARGEING
STEADY SHOT
16:9 WIDE
DISPLAY
FADER
DATE
TIME
COUNTER RESET
END SEARCH
POWER
CAMERA
OFF
PLAYER (VTR)
AUTO LOOK /MENU
MENU
(MENU DIAL)
PLAYER: AEP, UK model
VTR: E, Hong Kong model
CN001 6P
6 N.C
5 N.C
4 SS 3.5V
3 ZOOM SW
2 SS GND
1 N.C
CF-4220(L)-2 BOARD
W
(ZOOM)
T
(Seepage 5-69)
27 S STSTUS
28 LANC DC
29 LANC SIG
30 GND
VZ-2
3 LANC DC
2 LANC SIG
1 GND
7P
UNREG GND 7
UNREG GND 6
N.C 5
BL UNREG 4
MOTOR UNREG 3
CAM UNREG 2
VTR UNREG 1
FP-321
15P
VIDEO I/O 15
VIDEO GND 14
RFU DC OUT 13
AUDIO I/O L 12
JACK MONO 11
AUDIO I/O R 10
AUDIO GND 9
-S IN 8
S-C I/O 7
S-C GND 6
S-Y I/O 5
S-Y GND 4
LANC GND 3
ALNC DC 2
LANC SIG 1
JACK BLOCK
(See page 5-93)
LANC
(BOTTOM VIEW)
VIDEO
RFU DC OUT
AUDIO L
AUDIO R
S VIDEO
(D-1)
3 4 1 2

5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- •—— : indicated a lead wire mounted on the component side.
- :Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- ● :Through hole is omitted.
- Printed wiring board which has four layers structure but inner two layers' patterns are omitted.

Caution:	
SIDE A:	The pattern face side which is seen when the upper case is opened.
SIDE B:	The opposite pattern face side to the pattern seen when the upper case is opened.

- Chip parts (3-terminal transistor) C: Collector B: Base E: Emitter

- **For schematic diagrams.**
- Caution when replacing chip parts.. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistor are in ohms, 1/4W unless otherwise noted. Chip resistor are 1/10W unless otherwise noted. kΩ: 1000Ω, MΩ, : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μ μF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair. *
- ▬ : B+ Line. *
- ‒ ‒ ‒ : B− Line. *
- : IN/OUT direction of (+,−) B LINE. *
- Circled numbers refer to waveforms. *
- Signal name

*E/−L→E/L *−VAPB→VAPB

−EDIT→EDIT *VAPB→VAPB

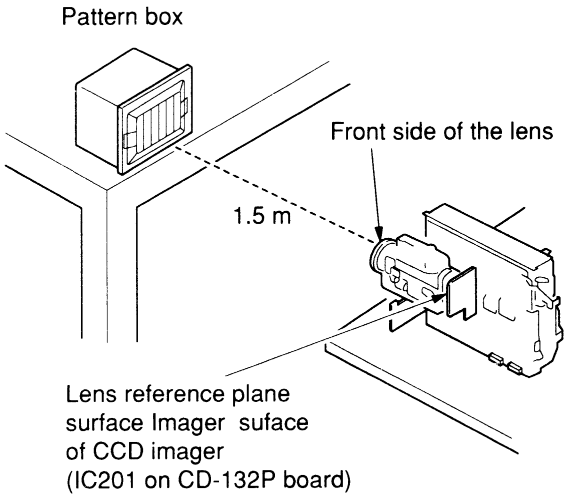
NOTE: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- * : indicated by the color red.

- **Camera block**
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values * and reference waveforms. (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.)

1. Connection


Pattern box
Front side of the lens
1.5 m
Lens reference plane surface Imager suface of CCD imager (IC201 on CD-132P board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

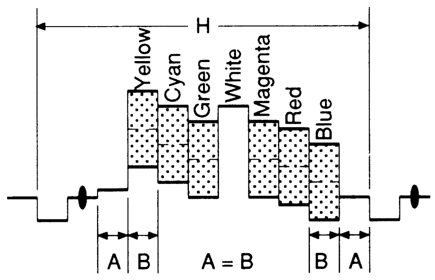


Fig. a (Video output terminal output waveform)

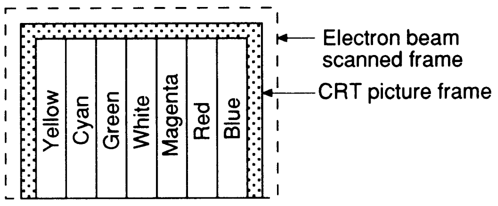

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

- **All blocks other than camera block**
- Voltages and waveforms are measured between the measurement points and ground when the color bar signal shown Fig. C (video signal) is input. They are reference values * and reference waveforms. (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.

Precautions Upon Replacing CCD Imager

- The CD-132P board mounted as a repair part is not equipped with a CCD imager. When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be dameged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

Color bar signal from pattern genereator

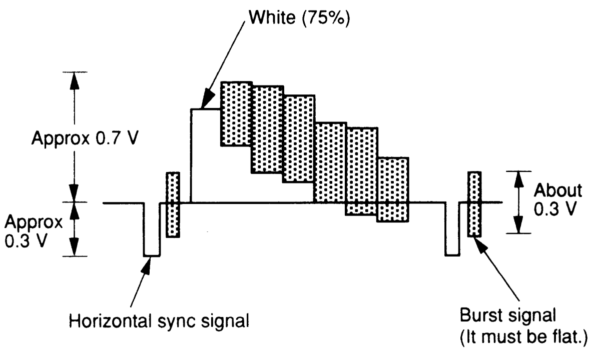
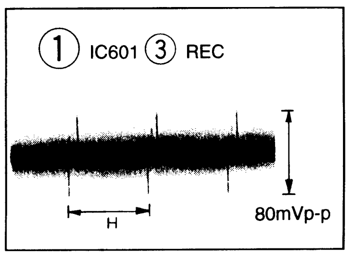
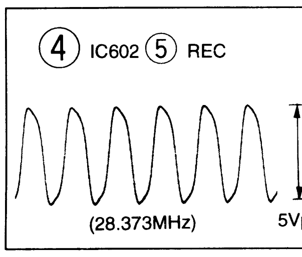
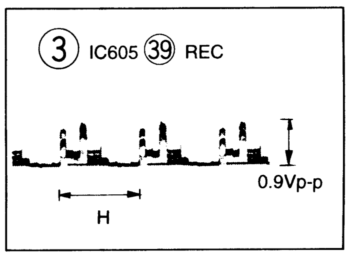


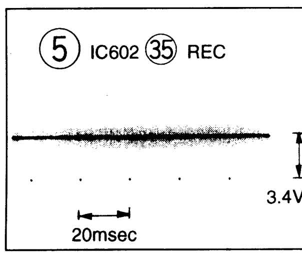
Fig.C

VC-158 BOARD



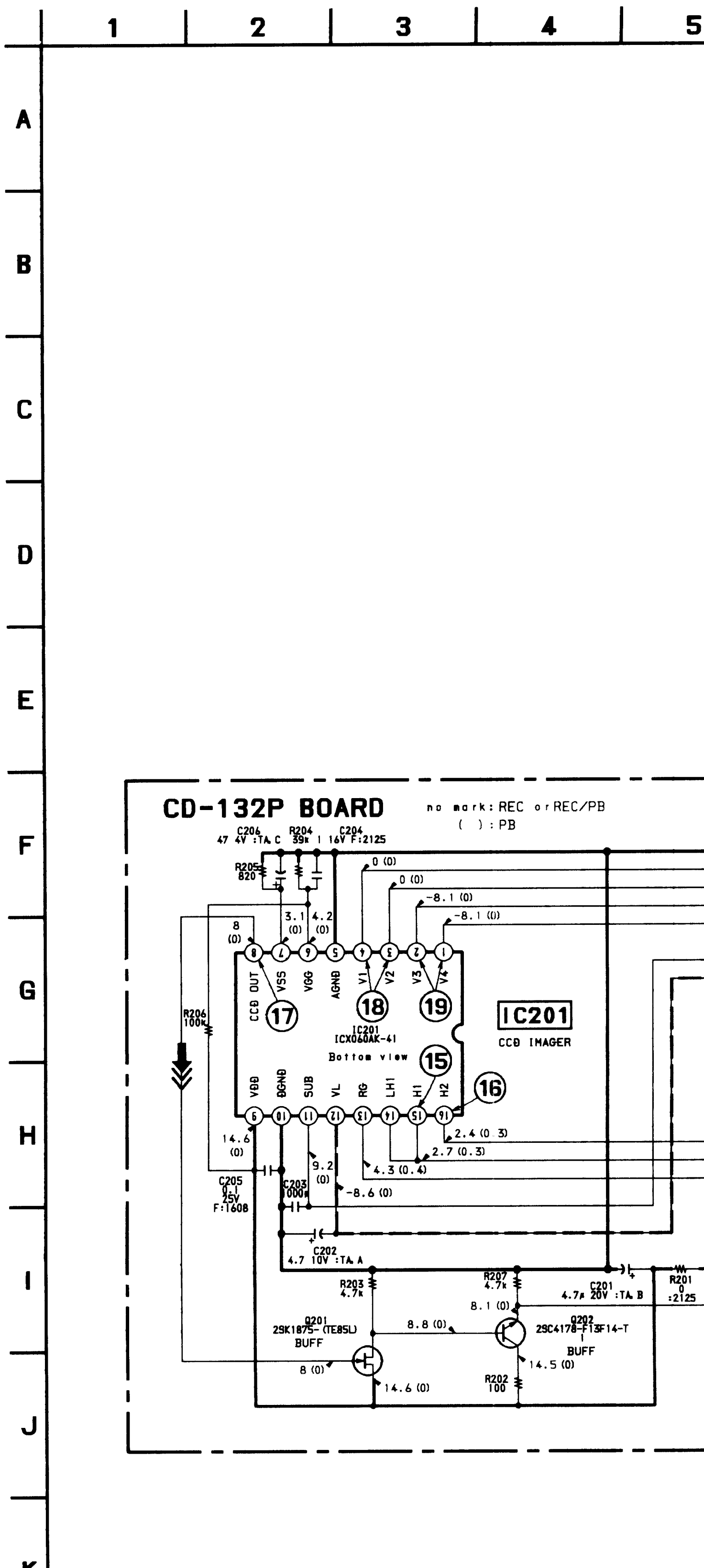






VC-158 (IMAGER CONTROL), CD-132P (CCD IMAGER) SCHEMATIC D

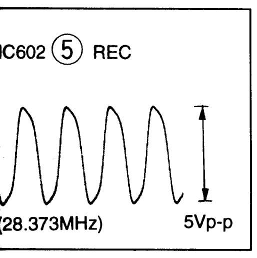
— Ref. No. : VC-158 Board; 2,000 Series, CD-132P Board; 1,000 Series —

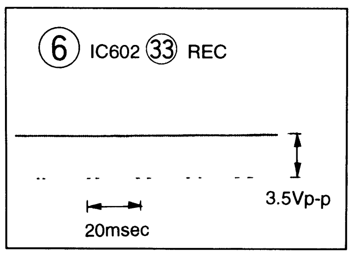

1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
K
L
CD-132P BOARD
no mark: REC or REC/PB
( ) : PB
C206 47 4V :TA C
R204 39k
C204 1 16V F:2125
R205 820
0 (0)
0 (0)
-8.1 (0)
-8.1 (0)
8 (0)
3.1 (0)
4.2 (0)
CCD OUT
VSS
VGG
AGND
V1
V2
V3
V4
⑰
⑱
⑲
IC201 ICX060AK-41
Bottom view
IC201
CCD IMAGER
⑮
⑯
VDD
DGND
SUB
VL
RG
LH1
H1
H2
R206 100k
14.6 (0)
9.2 (0)
2.4 (0.3)
2.7 (0.3)
4.3 (0.4)
-8.6 (0)
C205 0.1 25V F:1608
C203 1000p
C202 4.7 10V :TA A
R203 4.7k
R207 4.7k
C201 4.7μ 20V :TA B
R201 0 :2125
8.1 (0)
8.8 (0)
Q201 2SK1875-(TE85L) BUFF
Q202 2SC4178-F13F14-T BUFF
8 (0)
14.6 (0)
14.5 (0)
R202 100

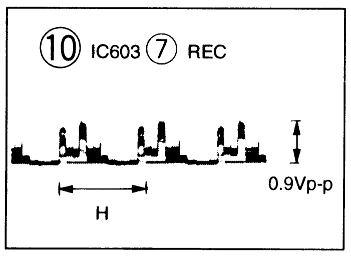
·SIGNAL PATH

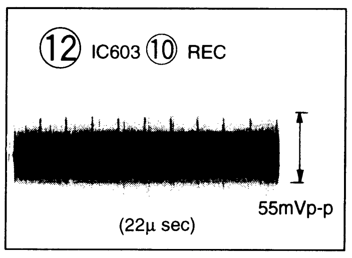
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡》	
PB				

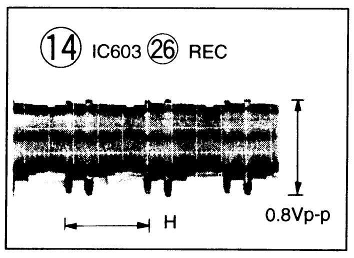
CD-132P BOARD

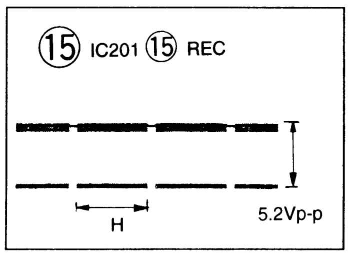


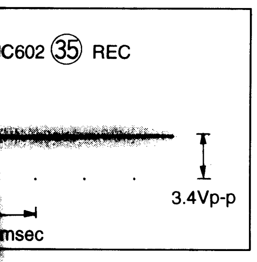


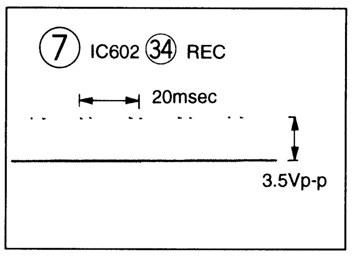


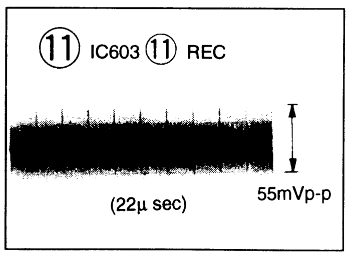


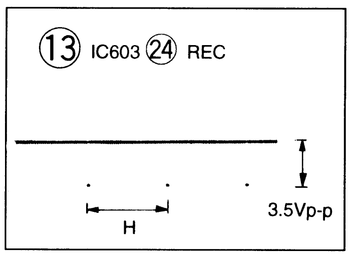


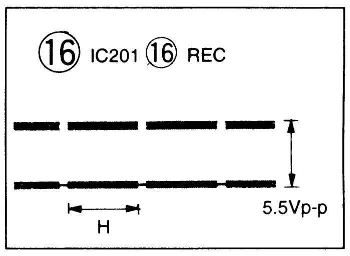






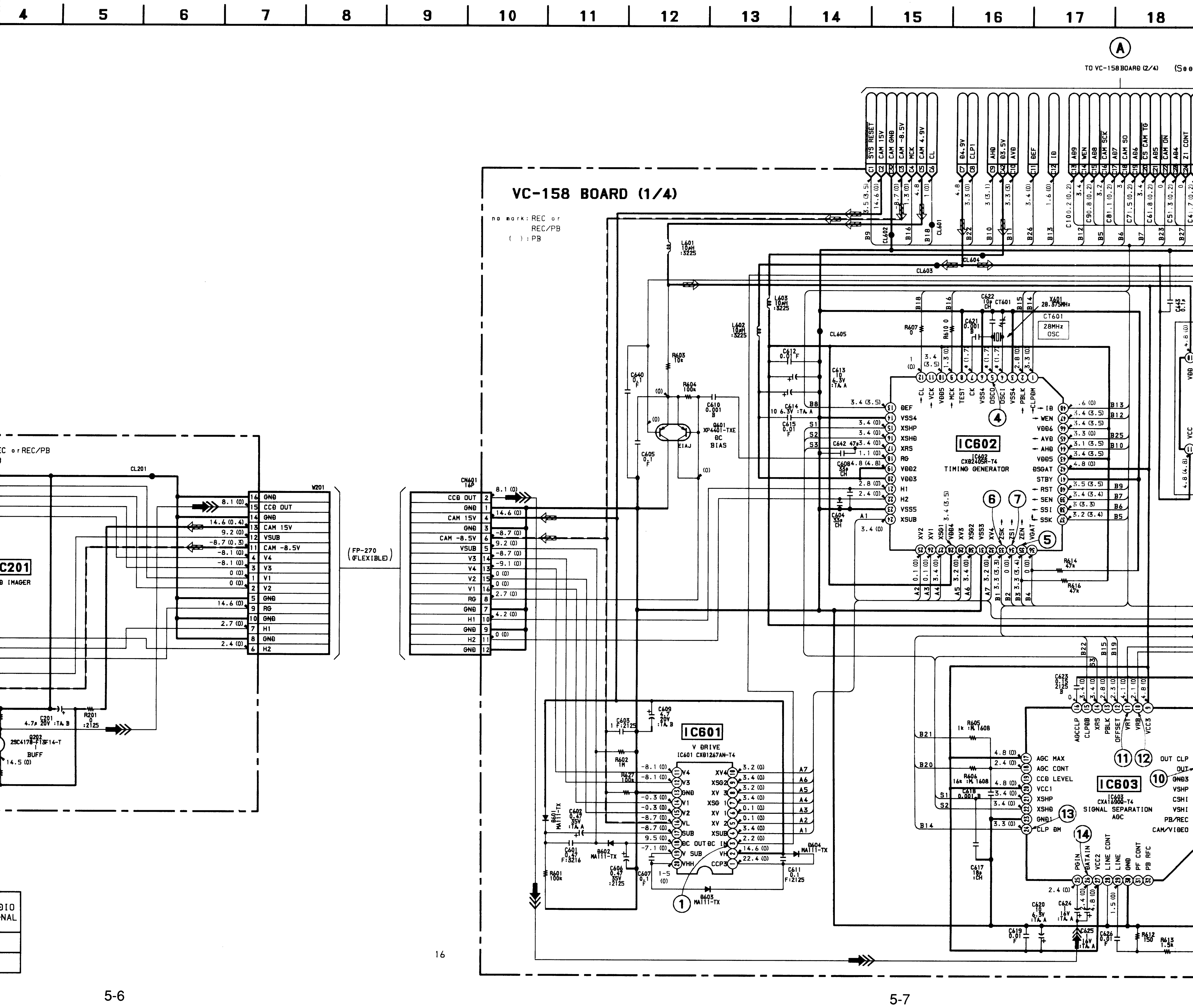




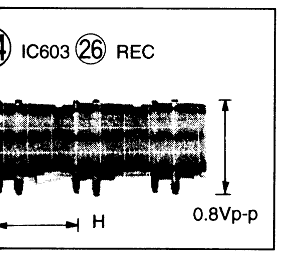


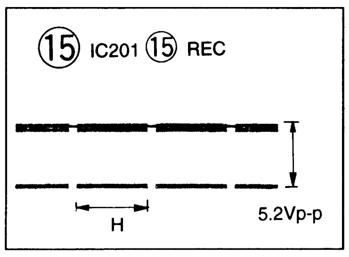
GER) SCHEMATIC DIAGRAMS

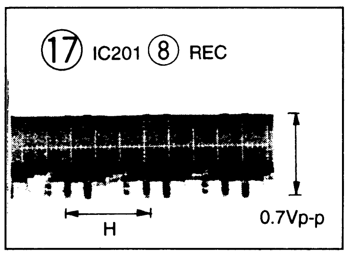
rd; 1,000 Series —

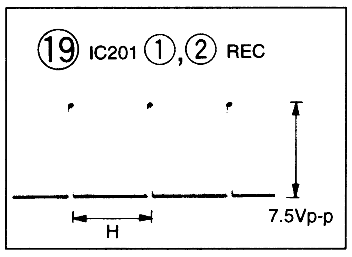

4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Ⓐ
TO VC-158 BOARD (2/4)
VC-158 BOARD (1/4)
no mark : REC or REC/PB
( ) : PB
C or REC/PB
IC201
B IMAGER
W201
CN601 16P
(FP-270 FLEXIBLE)
GND
CCD OUT
CAM 15V
VSUB
CAM -8.5V
V4
V3
V1
V2
RG
H1
H2
SYS RESET
CAM GND
MCK
CAM 4.9V
CL
D4.9V
CLP1
AHD
D3.5V
AVD
DEF
ID
WEN
CAM SCK
CAM SO
CAM TG
CAM ON
ZI CONT
IC602
CXD2405R-T4
TIMING GENERATOR
X601 28.375MHz
CT601 28MHz OSC
Q601 XP4401-TXE
DC BIAS
EIAJ
IC601
V DRIVE
IC601 CXD1267AN-T4
IC603
CXA1690Q-T4
SIGNAL SEPARATION
AGC
Q202 2SC4178-F13F14-T
BUFF
AGC MAX
AGC CONT
CCD LEVEL
VCC1
XSHP
XSHD
GND1
CLP BM
OUT CLP
VSHP
CSHI
VSHI
PB/REC
CAM/VIDEO
D603 MA111-TX
D604 MA111-TX
D601 MA111-TX
D602 MA111-TX
16

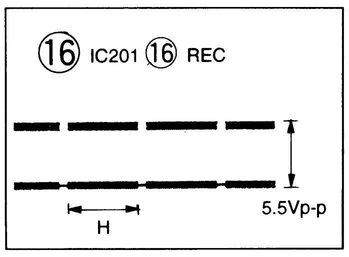
CD-132P BOARD

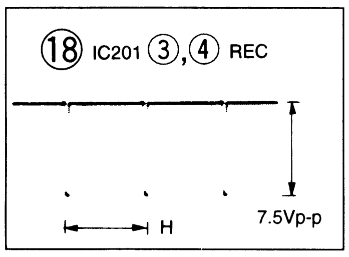


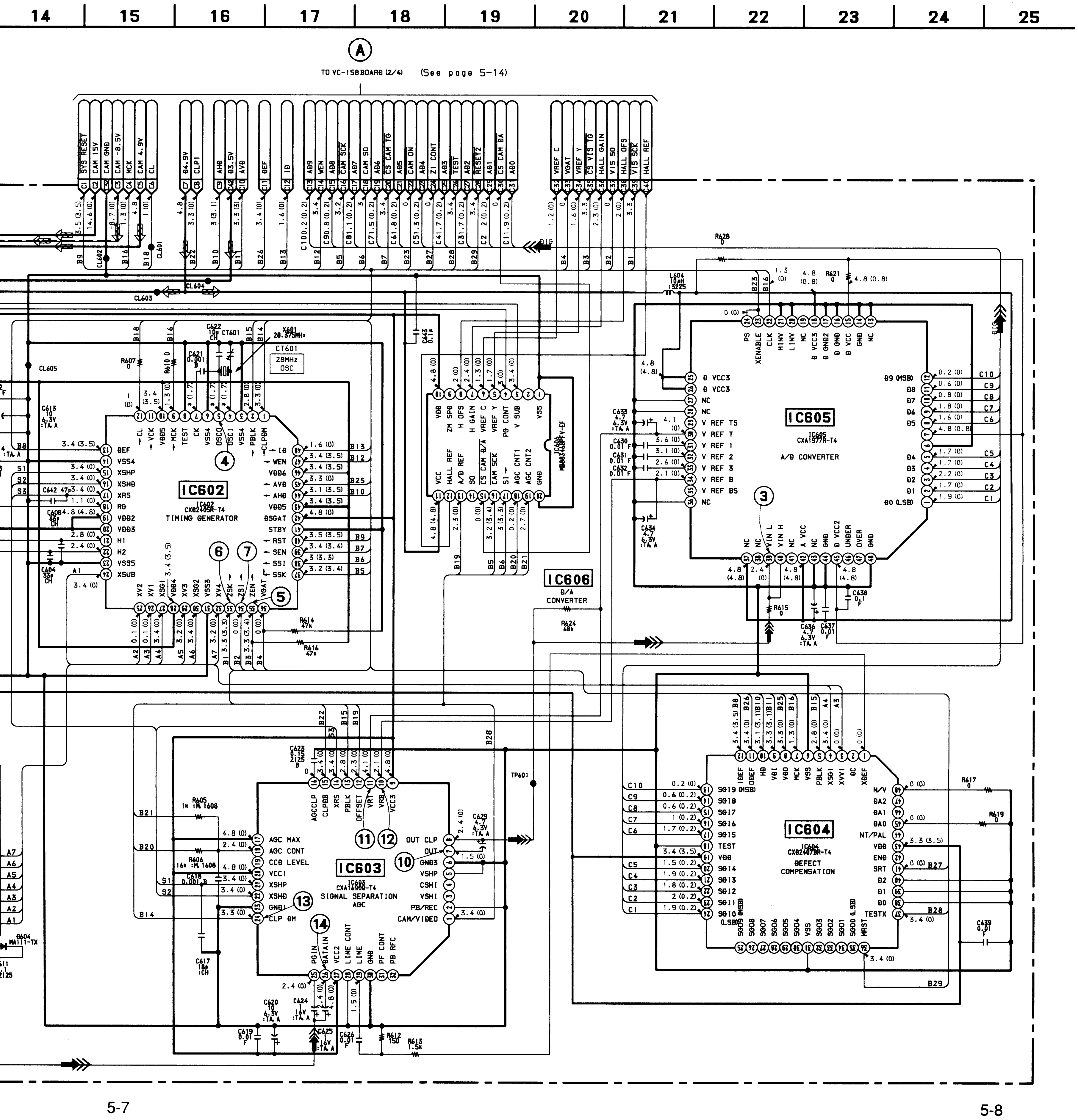










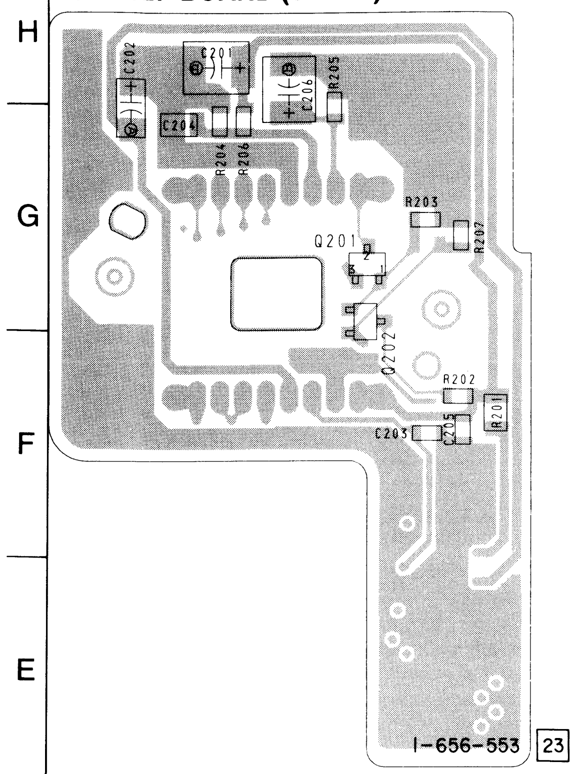

14
15
16
17
18
19
20
21
22
23
24
25
Ⓐ
TO VC-158 BOARD (2/4) (See page 5-14)
SYS RESET
CAM 15V
CAM GND
CAM -8.5V
MCK
CAM 4.9V
CL
D4.9V
CLPI
AHD
D3.5V
AVD
DEF
ID
AD9
AD8
CAM SCK
AD7
CS CAM TG
AD6
AD5
CAM ON
AD4
ZI CONT
AD3
TEST
AD2
RESET2
AD1
CS CAM DA
AD0
VREF C
VGAT
VREF Y
CS VIS TG
HALL GAIN
VIS SO
HALL OFS
VIS SCK
HALL REF
IC602
CX8240SR-T4
TIMING GENERATOR
X601
28.375MHz
CT601
28MHz
OSC
IC606
MB88346BPF-EF
D/A
CONVERTER
IC605
CXA1977R-T4
A/D CONVERTER
IC603
CXA1690Q-T4
SIGNAL SEPARATION
AGC
IC604
CX82407DR-T4
DEFECT
COMPENSATION
AGC MAX
AGC CONT
CCD LEVEL
VCC1
XSHP
XSHD
GND1
CLP BM
OUT CLP
OUT
GND3
VSHP
CSHI
VSHI
PB/REC
CAM/VIDEO
TP601
④
⑤
⑥
⑦
③
⑩
⑪
⑫
⑬
⑭

VC-158 (CAMERA), CD-132P (CCD IMAGER), SE-41P (CAMERA-SHAKE SENSOR) PRINTED WIRING BOARDS

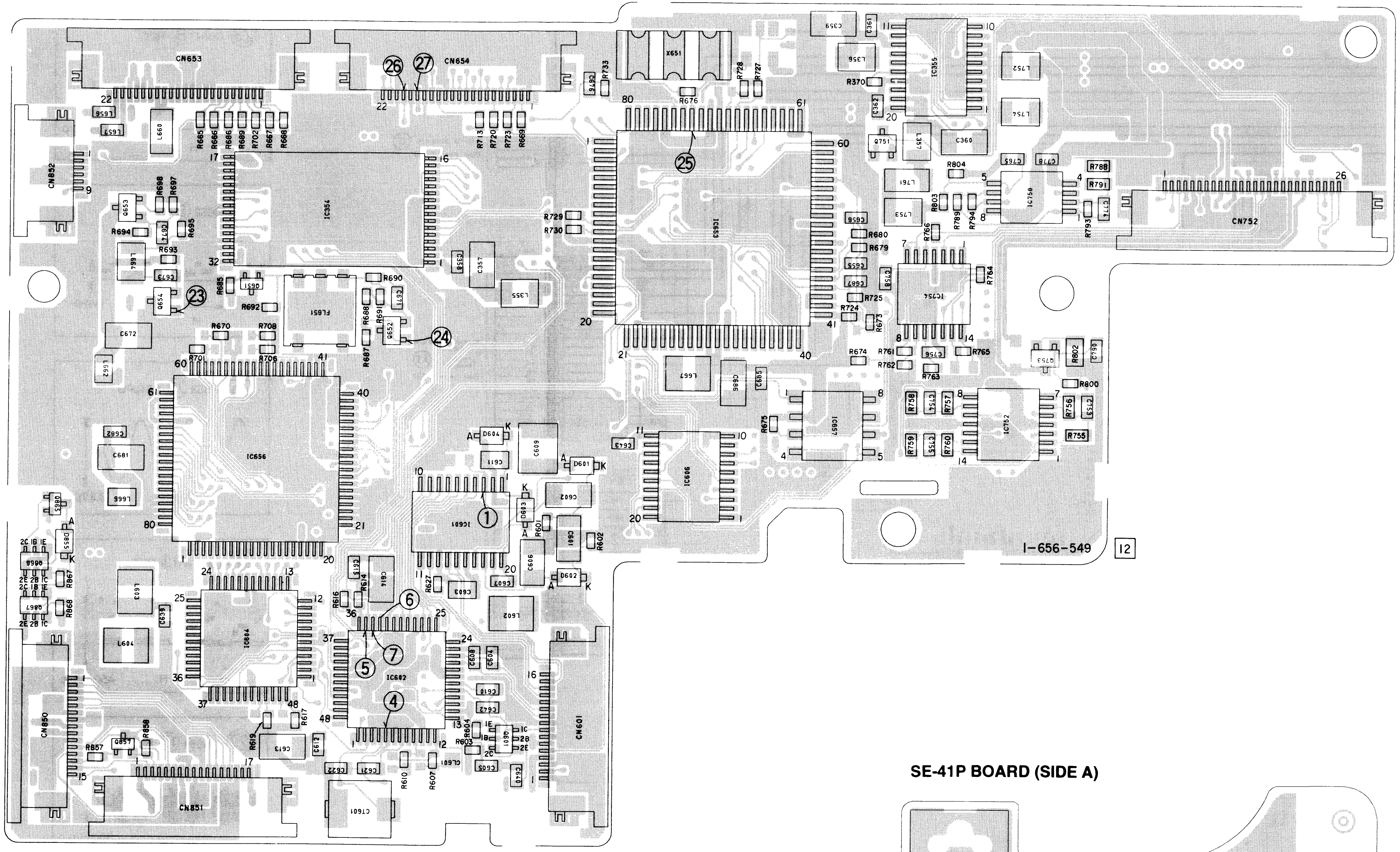
• Refer to page 5-9 for printed wiring board.

— Ref. No. : VC-158 Board; 2,000 Series, CD-132P Board and SE-41P Board; 1,000 Series —

CD-132P BOARD (SIDE A)


H
G
F
E
C201
C202
C204
C206
R204
R206
R205
R203
R207
Q201
Q202
R202
R201
C203
C205
1-656-553
23

VC-158 BOARD (SIDE A)


CN653
CN654
CN652
CN752
CN650
CN651
CN601
IC354
IC353
IC355
IC656
IC654
IC602
IC601
IC606
IC651
IC752
IC754
IC759
X651
FL651
R733
R728
R727
R676
R370
R729
R730
R690
R692
R670
R708
R706
R701
R694
R693
R698
R697
R695
R685
R686
R689
R702
R687
R688
R691
R713
R720
R723
R669
Q653
Q654
Q652
Q751
Q753
Q857
C672
C681
L660
L661
L662
L663
L666
L604
L602
L355
L751
L752
L753
L754
C357
C358
C359
C360
C609
C611
C602
C603
C605
C613
C621
C622
CL601
D604
D601
D602
R602
R603
R604
R607
R610
R616
R614
R617
R619
R627
R857
R858
R867
R868
R674
R675
R761
R762
R763
R765
R680
R679
R724
R725
R764
R766
R803
R804
R789
R788
R791
R793
R794
R800
R802
R755
R756
R757
R758
R759
R760
C685
C686
①
④
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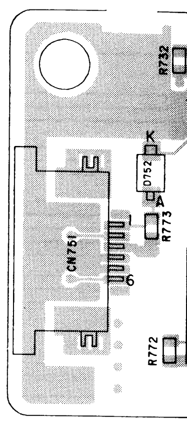
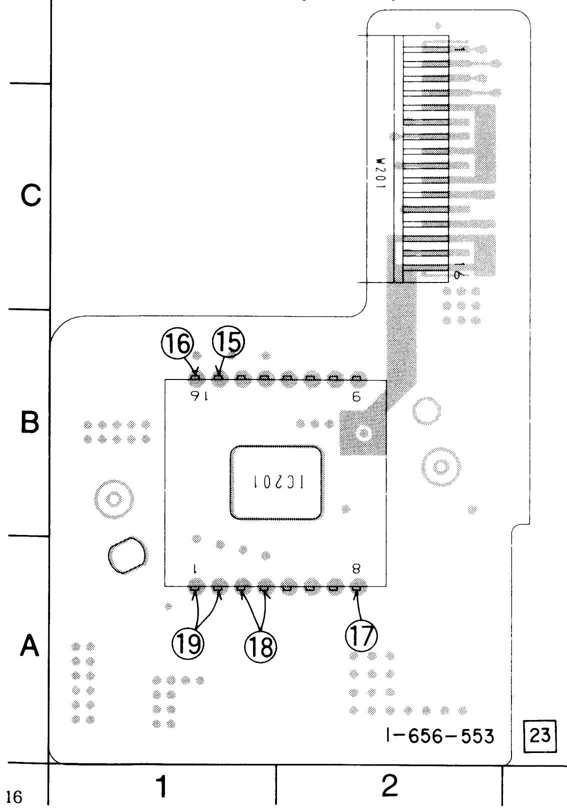
1-656-549
12

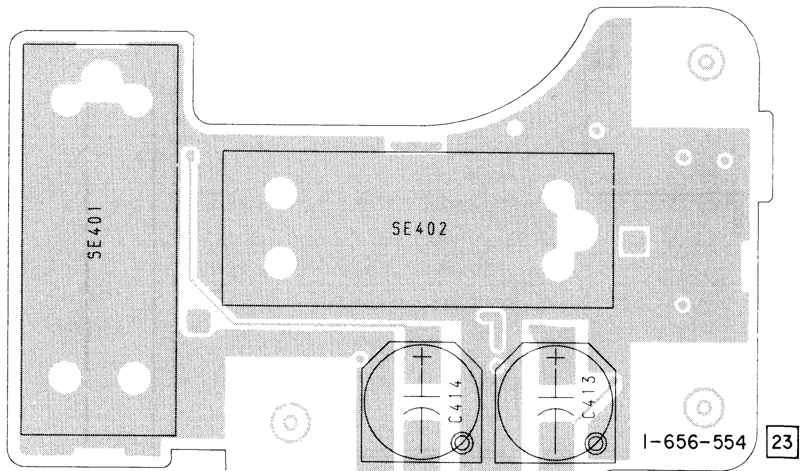
VC-158 BOAR


R732
D752
R773
CN751
R772

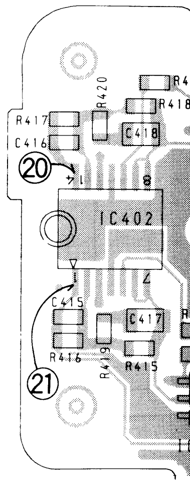
CD-132P BOARD (SIDE B)


D
C
B
A
W201
IC201
⑮
⑯
⑰
⑱
⑲
16
9
1
8
1-656-553
23

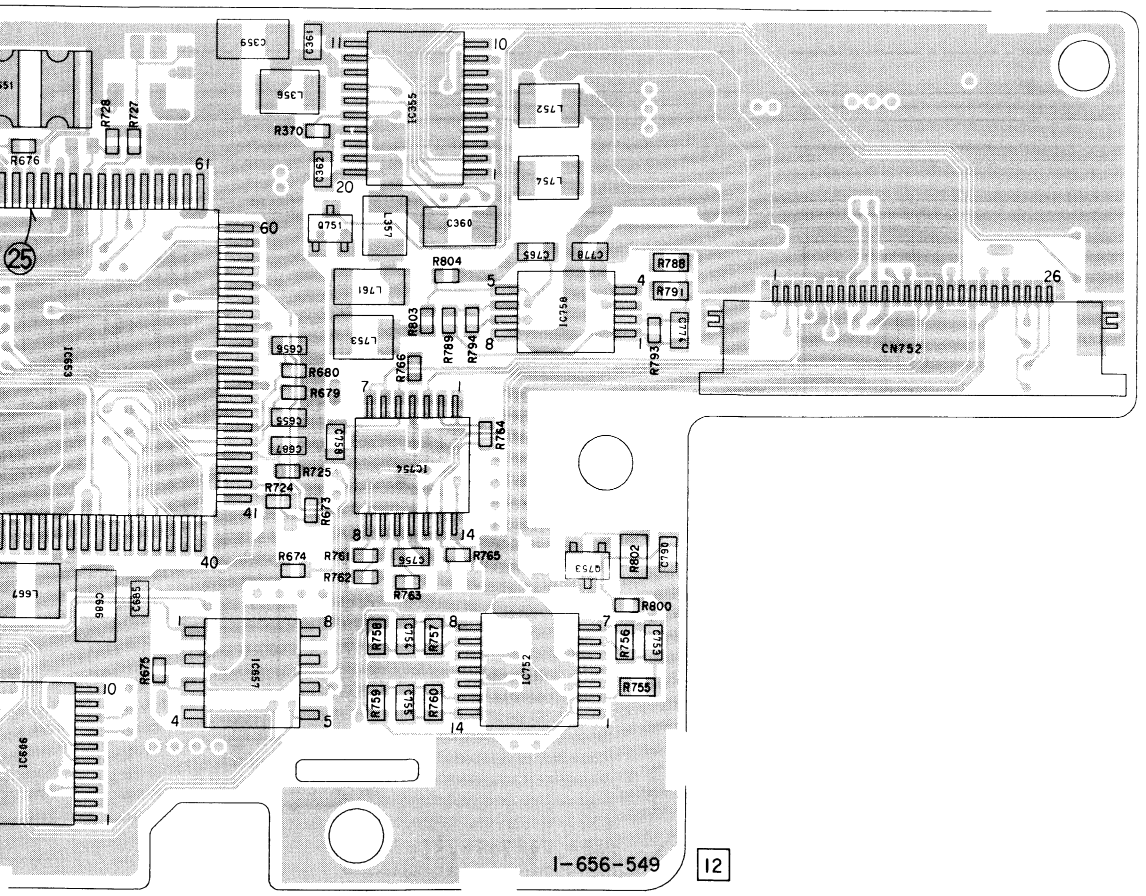
SE-41P BOARD (SIDE A)


SE401
SE402
C414
C413
1-656-554
23

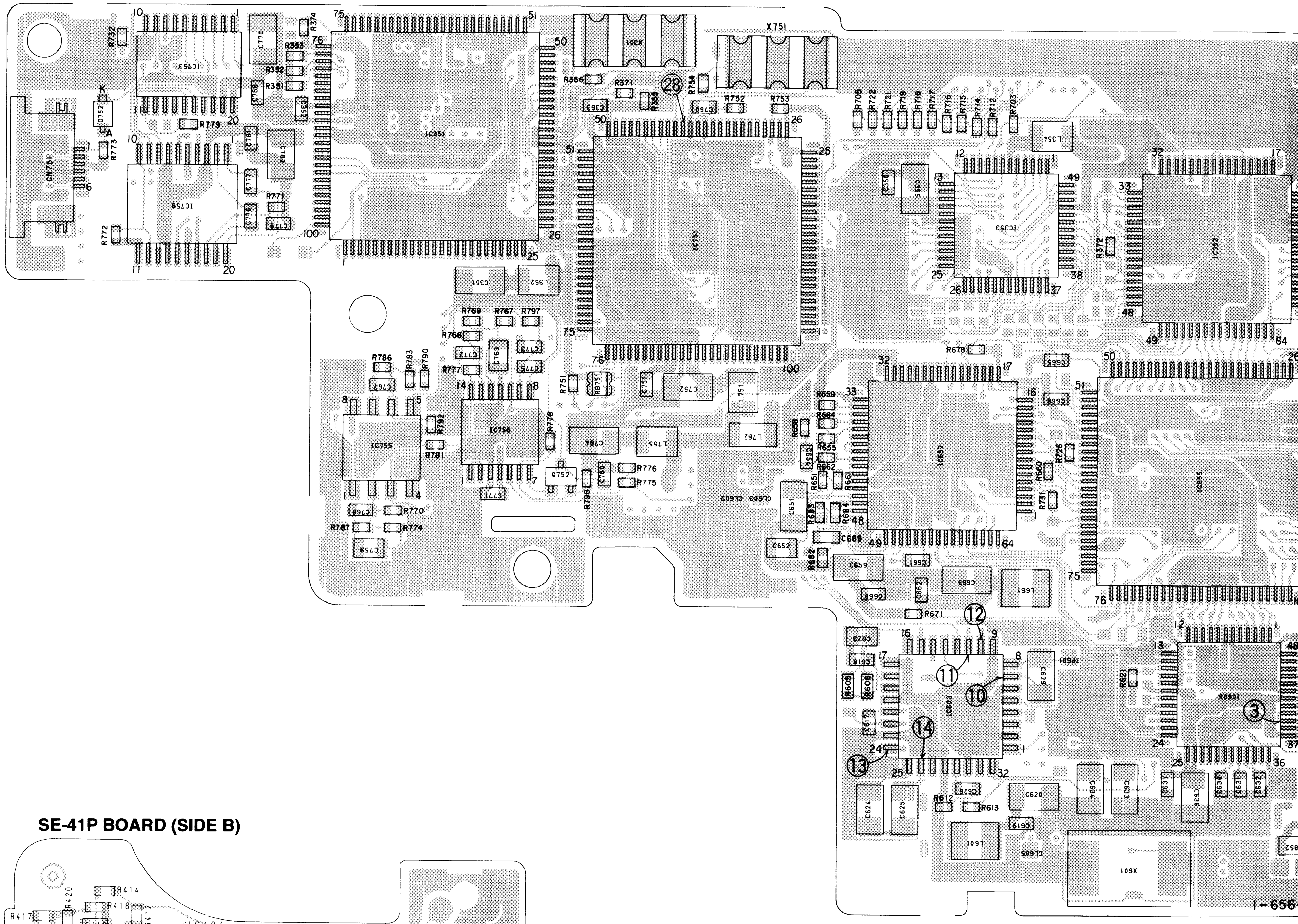
SE-41P BO


R417
C416
R420
R418
C418
⑳
IC402
C415
C417
R416
R415
R419
㉑

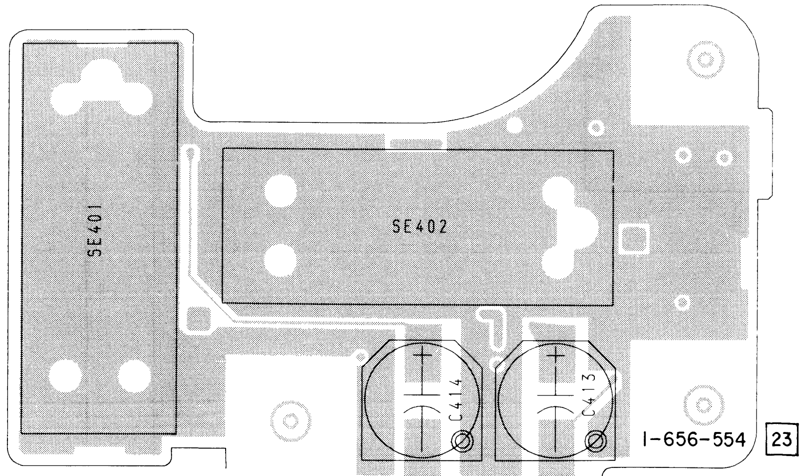
g board.


IC355
IC356
IC653
IC754
IC752
IC651
IC606
IC758
CN752
1-656-549
12

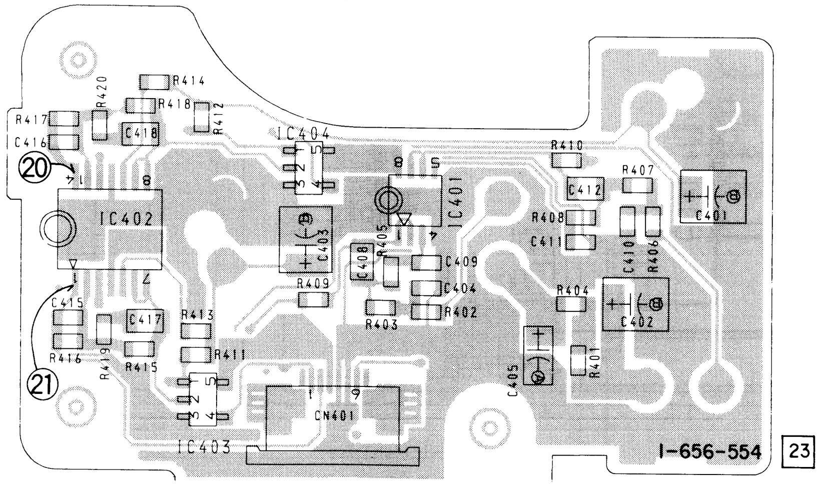
VC-158 BOARD (SIDE B)


IC753
IC759
IC351
IC751
IC353
IC352
IC755
IC756
IC652
IC655
IC603
IC656
CN751
X751
X351
X601
1-656-

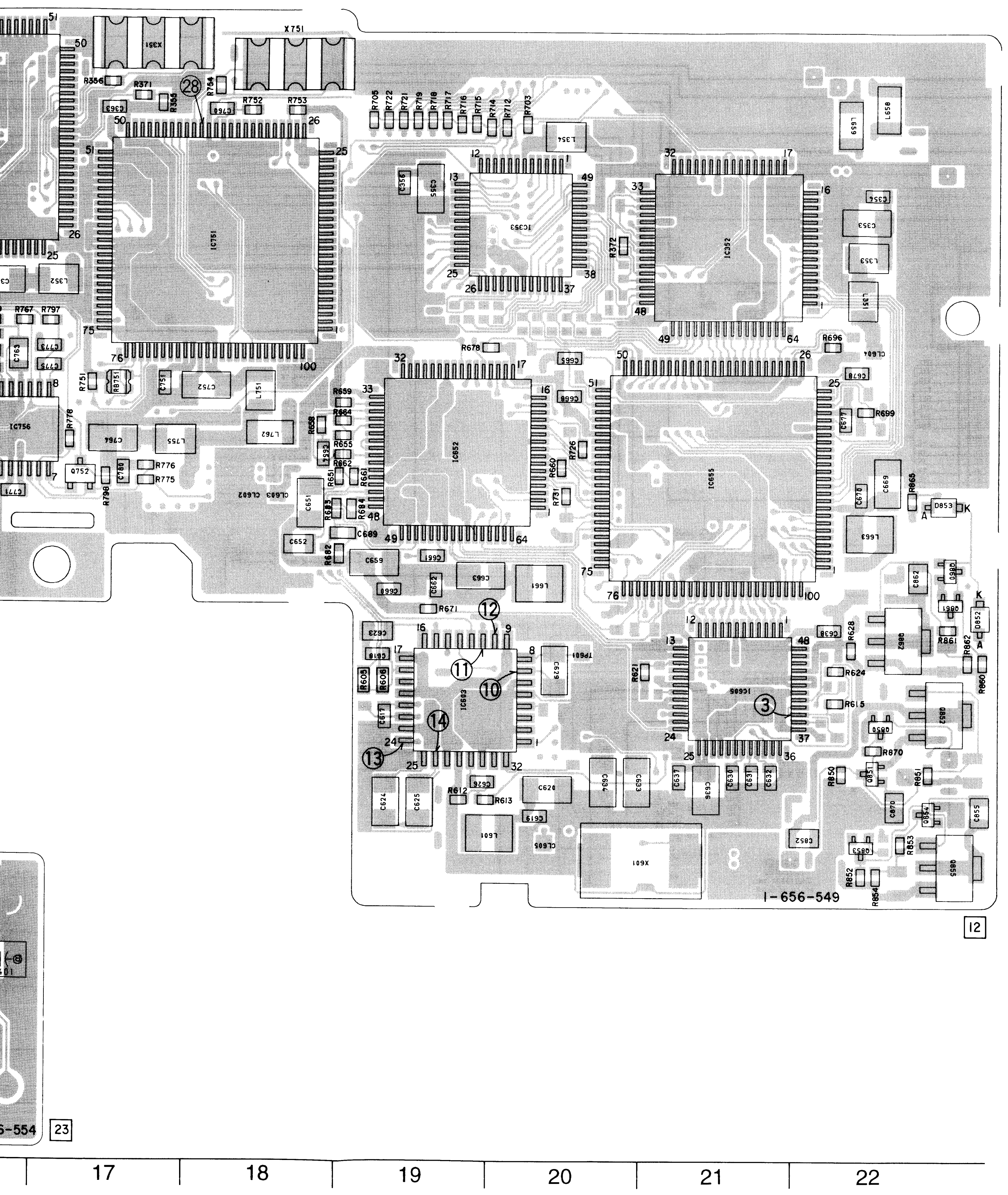
SE-41P BOARD (SIDE A)


SE401
SE402
C414
C413
1-656-554
23

SE-41P BOARD (SIDE B)


IC402
IC404
IC401
IC403
CN401
1-656-554
23

8	9	10	11	12	13	14	15	16	17	18	19	20	21



VC-158 BOARD

C351	F-16
C352	G-15
C353	G-22
C354	G-22
C355	G-19
C356	G-19
C357	F-6
C358	F-6
C359	H-9
C360	G-10
C361	H-9
C362	G-9
C363	G-17
C601	D-7
C602	E-7
C603	D-6
C604	C-6
C605	C-6
C606	D-7
C607	D-6
C608	C-6
C609	E-7
C610	C-6
C611	E-6
C612	C-5
C613	C-5
C614	D-6
C615	D-5
C617	C-19
C618	D-19
C619	C-20
C620	C-20
C621	C-6
C622	C-5
C623	D-19
C624	C-19
C625	C-19
C626	C-19
C629	D-20
C630	C-21
C631	C-21
C632	C-21
C633	C-21
C634	C-20
C636	C-21
C637	C-21
C638	D-22
C639	D-4
C640	C-7
C642	C-6
C643	E-7
C651	E-18
C652	E-18
C654	E-18
C655	F-9
C656	G-9
C659	D-19
C660	D-19
C661	D-19
C662	D-19
C663	D-19
C665	F-20
C668	F-22
C669	E-22
C670	E-6
C671	F-4
C672	F-4
C673	F-4
C674	F-7
C676	A-22
C677	E-22
C678	F-4
C681	E-4
C682	E-8
C685	E-8
C686	E-9
C687	F-17
C689	D-18
C751	F-18
C752	F-18
C753	E-11
C754	E-9
C755	E-9
C756	F-9
C758	F-9
C759	E-16
C760	G-18
C763	F-16
C764	E-17
C765	G-10
C766	G-17
C767	F-16
C768	E-16
C770	H-15
C771	E-16
C772	F-16
C773	F-17
C774	G-11
C775	F-17
C776	G-15
C777	G-15
C778	G-10
C779	G-15
C780	E-17
C781	G-15
C782	G-15
C790	E-11
C852	C-22
C855	C-23
C862	D-22
C870	C-22
CN601	C-7
CN653	H-4
CN654	H-6
CN751	G-13
CN752	G-12
CN850	C-3
CN851	B-4
CN852	G-3
CT601	B-5
D601	E-7
D602	D-7
D603	E-7
D604	E-6
D752	G-14
D852	D-23
D853	E-23
D855	D-3
FL651	F-5
IC351	G-16
IC352	G-21
IC353	G-20
IC354	G-5
IC355	H-9
IC601	D-6
IC602	C-6
IC603	D-19
IC604	D-5
IC605	D-21
IC606	E-8
IC652	E-19
IC653	G-8
IC655	E-21
IC656	E-5
IC657	E-9
IC751	G-18
IC752	E-10
IC753	H-14
IC754	F-9
IC755	E-16
IC756	E-16
IC758	G-10
IC759	G-14
L351	F-22
L352	F-17
L353	F-22
L354	G-20
L355	F-7
L356	H-9
L357	G-9
L601	C-20
L602	D-7
L603	D-4
L604	D-4
L656	G-4
L657	G-4
L658	G-22
L659	G-22
L660	G-4
L661	D-20
L662	E-4
L663	E-22
L664	F-4
L666	E-4
L667	E-8
L751	F-18
L752	H-10
L753	G-9
L754	G-10
L755	E-17
L761	G-9
L762	E-18
Q601	C-7
Q651	F-5
Q652	F-6
Q653	G-4
Q654	F-4
Q751	G-9
Q752	E-17
Q753	F-10
Q850	C-22
Q851	C-22
Q852	C-23
Q853	C-22
Q854	C-22
Q855	B-25
Q857	C-4
Q860	D-23
Q861	D-23
Q862	D-22
Q865	E-3
Q866	D-3
Q867	D-3
R351	H-15
R352	H-15
R353	H-15
R355	G-17
R356	H-17
R370	H-9
R371	G-17
R372	F-20
R374	H-15
R601	D-7
R602	D-7
R603	C-6
R604	C-6
R605	D-19
R606	D-19
R607	C-6
R610	C-6
R612	C-19
R613	C-20
R614	D-5
R615	D-22
R616	D-5
R617	C-5
R619	C-5
R621	D-21
R624	D-22
R627	D-6
R628	D-22
R651	E-19
R655	E-19
R658	E-18
R659	E-19
R660	E-20
R661	E-19
R662	E-19
R664	E-19
R665	G-4
R666	G-4
R667	G-5
R668	G-5
R669	G-7
R670	F-5
R671	D-19
R673	F-9
R674	F-9
R675	E-8
R676	G-8
R678	F-20
R679	F-9
R680	F-9
R682	D-18
R683	D-18
R684	D-18
R685	F-5
R686	G-5
R687	F-6
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R689	G-5
R690	F-6
R691	F-6
R692	F-5
R693	F-4
R694	F-4
R695	F-4
R696	F-22
R697	G-4
R698	G-4
R699	E-22
R701	F-4
R702	G-5
R703	G-20
R705	G-19
R706	F-5
R708	F-5
R712	G-20
R713	G-6
R714	G-20
R715	G-19
R716	G-19
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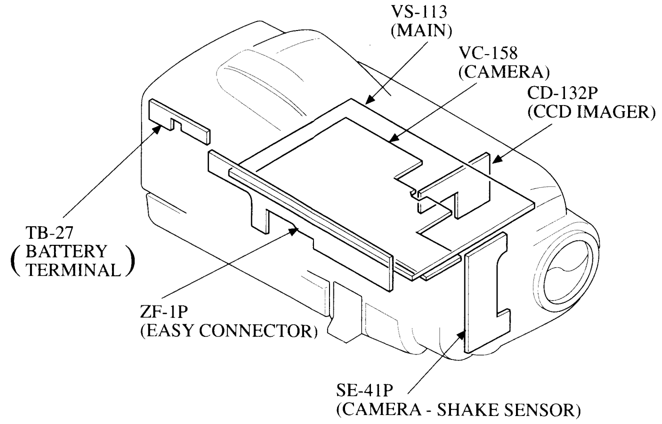
R719	G-19
R720	G-6
R721	G-19
R722	G-19
R723	G-7
R724	F-9
R725	F-9
R726	E-20
R727	G-8
R728	G-8
R729	G-7
R730	F-7
R731	E-20
R732	H-14
R733	G-7
R751	F-17
R752	G-18
R753	G-18
R754	G-18
R755	E-10
R756	E-10
R757	E-10
R758	E-9
R759	E-9
R760	E-10
R761	F-9
R762	F-9
R763	F-9
R764	F-10
R765	F-10
R766	F-9
R767	F-16
R768	F-16
R769	F-16
R770	E-16
R771	G-15
R772	G-14
R773	G-14
R774	E-16
R775	E-17
R776	E-17
R777	F-16
R778	E-17
R779	G-14
R781	E-16
R783	F-16
R786	F-16
R787	E-16
R788	G-11
R789	G-10
R790	F-16
R791	G-11
R792	E-16
R793	G-11
R794	G-10
R797	E-17
R798	E-17
R800	E-10
R802	F-10
R803	G-10
R804	G-10
R850	C-22
R851	E-22
R852	B-22
R853	E-22
R854	B-22
R857	C-4
R858	C-4
R860	D-23
R861	D-23
R862	D-23
R867	D-3
R868	D-3
R870	C-22
RB751	F-17
X351	H-17
X601	B-21
X651	H-8
X751	G-18

CD-132P BOARD

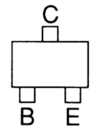
C201	H-1
C202	H-1
C203	F-2
C204	G-1
C205	F-2
C206	H-2
IC201	B-1
Q201	G-2
Q202	G-2
R201	F-2
R202	F-2
R203	G-2
R204	G-1
R205	G-2
R206	G-1
R207	G-2
W201	C-2

SE-41P BOARD

C401	B-16
C402	A-16
C403	B-15
C404	A-15
C405	A-16
C408	B-15
C409	B-15
C410	B-16
C411	B-16
C412	B-16
C413	B-12
C414	B-11
C415	A-14
C416	B-13
C417	A-14
C418	B-14
CN401	A-15
IC401	B-15
IC402	B-14
IC403	A-14
IC404	B-15
R401	A-16
R402	A-15
R403	A-15
R404	A-16
R405	A-15
R406	B-16
R407	B-16
R408	B-16
R409	A-15
R410	B-16
R411	A-14
R412	B-14
R413	A-14
R414	B-14
R415	A-14
R416	A-14
R417	B-13
R418	B-14
R419	A-14
R420	B-14
SE401	B-10
SE402	B-11



- Chip parts (3-terminal transistor)

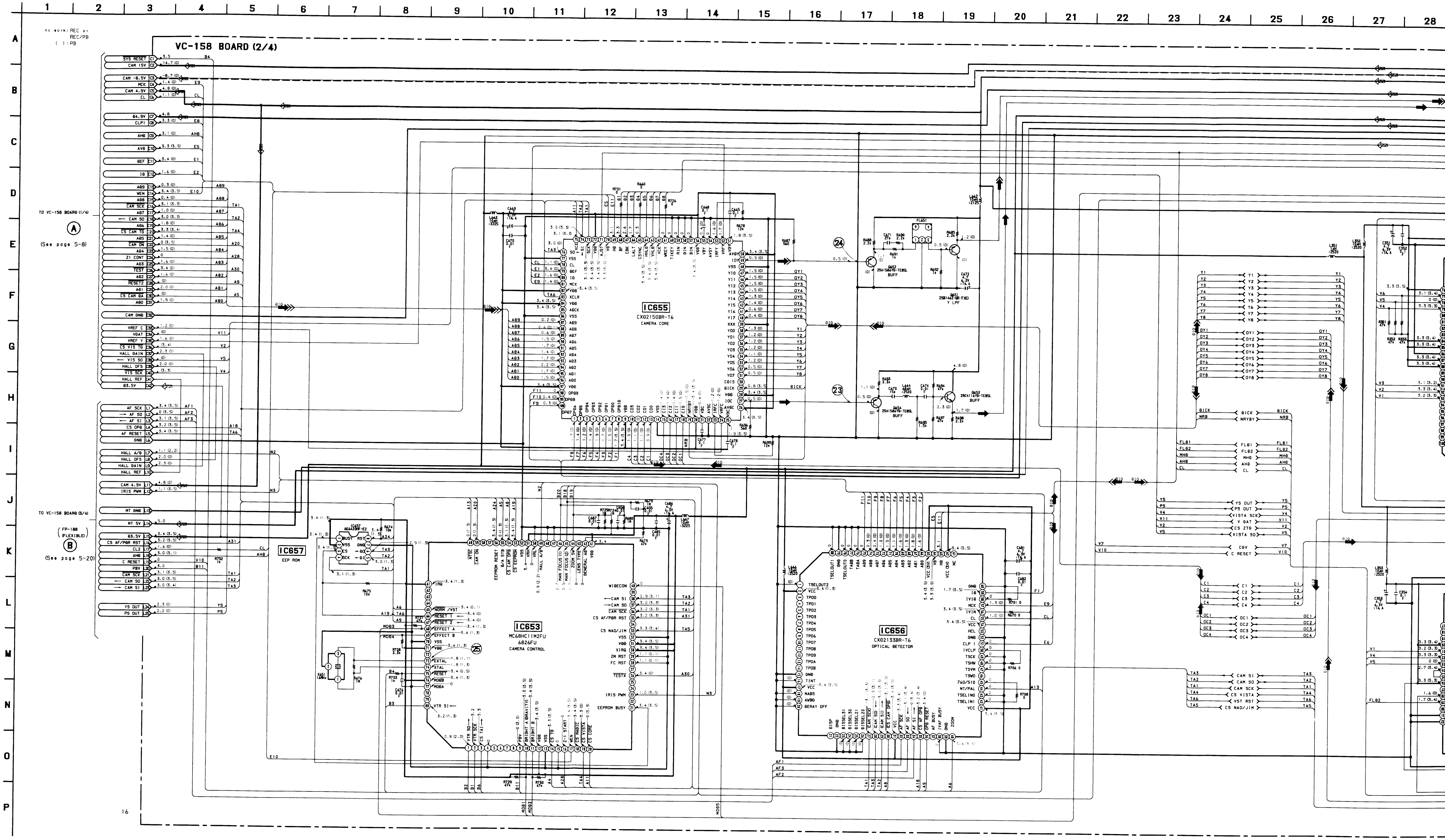


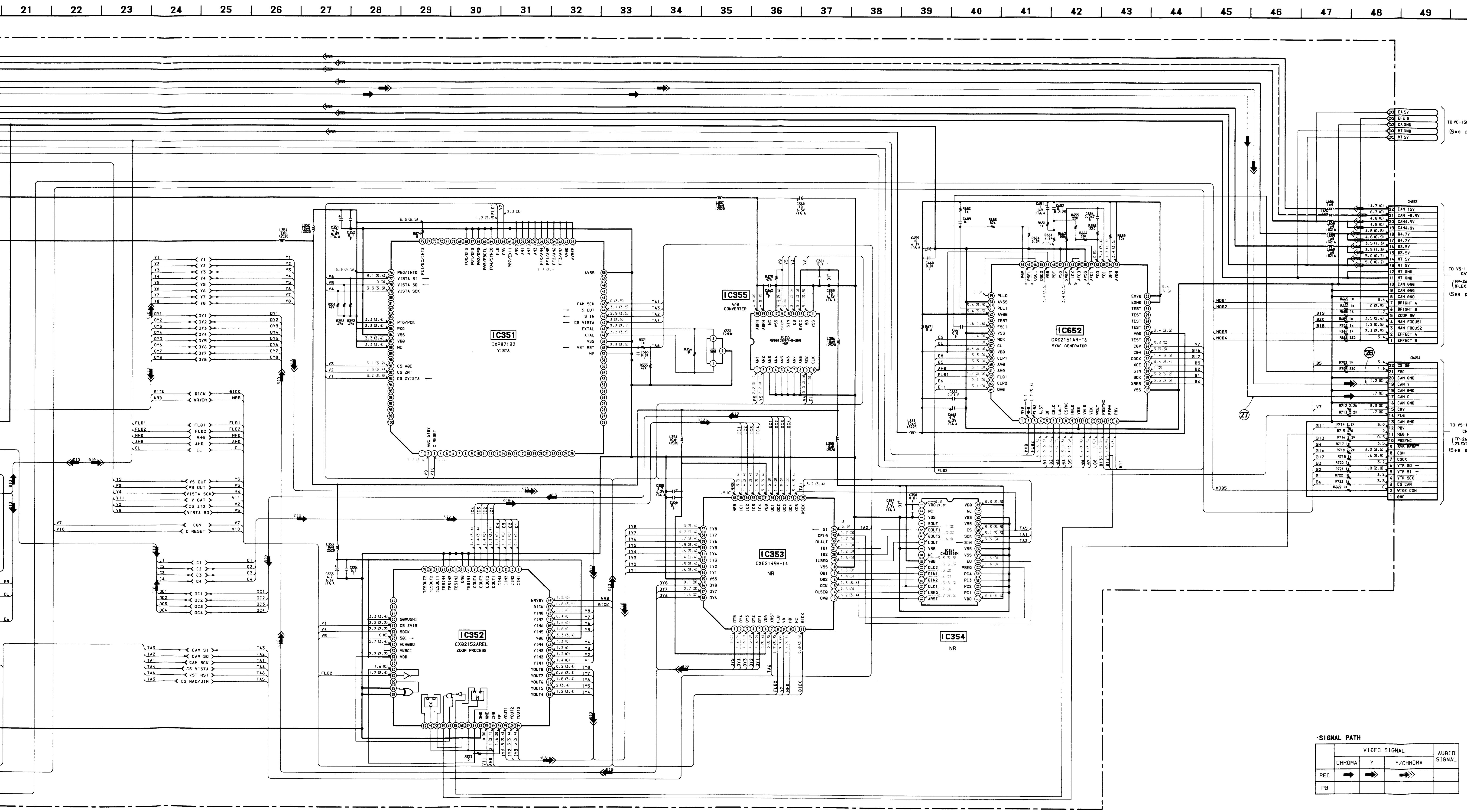
C: Collector
B: Base
E: Emitter

VC-158 (CAMERA) SCHEMATIC DIAGRAM

— Ref. No. : VC-158 Board; 1,000 Series —

• Refer to page 5-9 for printed wiring board.


VC-158 BOARD (2/4)
TO VC-158 BOARD (1/4)
Ⓐ
(See page 5-8)
TO VC-158 BOARD (3/4)
(FP-188 (FLEXIBLE))
Ⓑ
(See page 5-20)
SYS RESET
CAM 15V
CAM -8.5V
MCK
CAM 4.9V
CL
B4.9V
CLP1
AHB
AVB
BEF
IB
CAM SCK
CAM SO
CS CAM TG
CAM ON
CAM GND
VREF C
VREF Y
CS VIS TG
HALL GAIN
VIS SO
HALL OFS
VIS SCK
HALL REF
B3.5V
AF SCK
AF SO
AF SI
CS DPB
AF RESET
GND
HALL A/D
HALL OFS
HALL GAIN
HALL REF
CAM 4.9V
IRIS PWM
MT GND
MT 5V
B3.5V
CS AF/PBR RST
CL2
AHB
C RESET
PBV
CAM SCK
CAM SO
CAM SI
YS OUT
PS OUT
IC655
CXD2150BR-T6
CAMERA CORE
IC657
EEP ROM
IC653
MC68HC11M2FU
6826FU
CAMERA CONTROL
IC656
CXD2133BR-T6
OPTICAL DETECTOR
Q452
2SA1586YB-TE85L
BUFF
Q453
2SC4116YB-TE85L
BUFF
Q454
2SA1586YB-TE85L
BUFF
Q451
2SB1462-QR(TX)
Y LPF
FL451
X451
BICK
NRBY
FLB1
FLB2
MHB
AHB
CL
YS OUT
PS OUT
VISTA SCK
V GAT
CS ZTG
VISTA SO
CBV
C RESET
CAM SI
CAM SO
CAM SCK
CS VISTA
VST RST
CS NAD/JIM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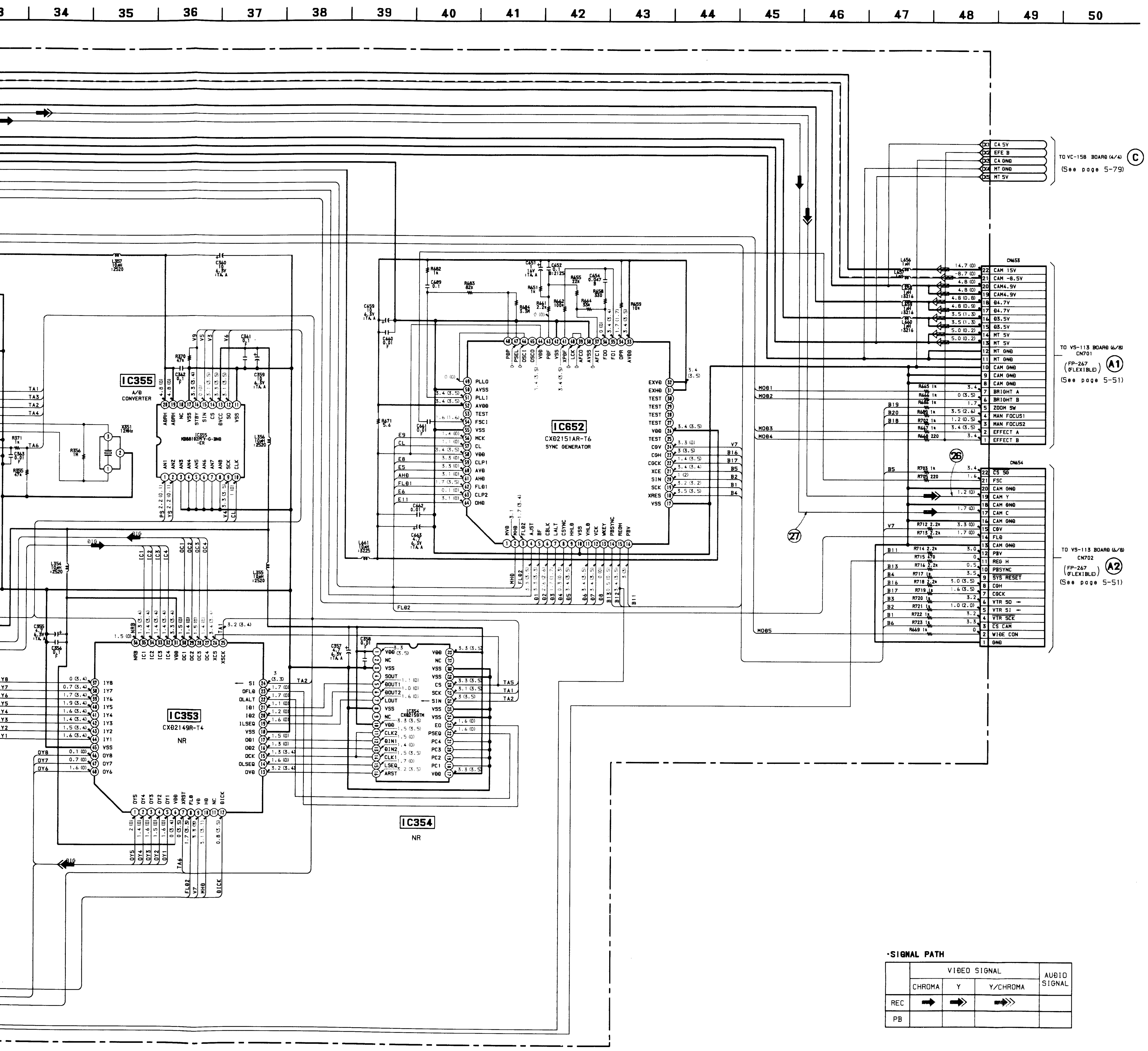
IC351
CXP87132
VISTA
IC352
CXD2152AREL
ZOOM PROCESS
IC353
CXD2149R-T4
NR
IC354
NR
IC355
A/D
CONVERTER
IC652
CXD2151AR-T6
SYNC GENERATOR
CN653
CN654
TO VC-15
TO VS-1
26
27

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛»	
PB				


34
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43
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45
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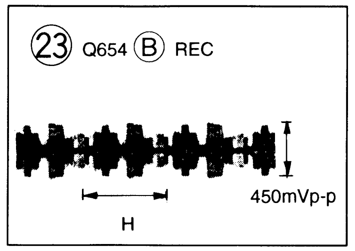
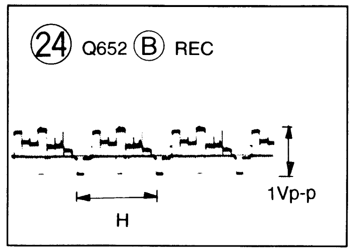
47
48
49
50
IC355
A/D CONVERTER
IC652
CX02151AR-T6
SYNC GENERATOR
IC353
CX02149R-T4
NR
IC354
NR
CA 5V
EFE B
CA GND
MT GND
MT 5V
TO VC-158 BOARD (4/4)
C
(See page 5-79)
CN653
22 CAM 15V
21 CAM -8.5V
20 CAM4.9V
19 CAM4.9V
18 D4.7V
17 D4.7V
16 D3.5V
15 D3.5V
14 MT 5V
13 MT 5V
12 MT GND
11 MT GND
10 CAM GND
9 CAM GND
8 CAM GND
7 BRIGHT A
6 BRIGHT B
5 ZOOM SW
4 MAN FOCUS1
3 MAN FOCUS2
2 EFFECT A
1 EFFECT B
TO VS-113 BOARD (6/8)
CN701
(FP-267 (FLEXIBLE))
A1
(See page 5-51)
CN654
22 CS SG
21 FSC
20 CAM GND
19 CAM Y
18 CAM GND
17 CAM C
16 CAM GND
15 CDV
14 FLD
13 CAM GND
12 PBV
11 REG H
10 PBSYNC
9 SYS RESET
8 CDH
7 CDCK
6 VTR SO
5 VTR SI
4 VTR SCK
3 CS CAM
2 WIDE CON
1 GND
TO VS-113 BOARD (6/8)
CN702
(FP-267 (FLEXIBLE))
A2
(See page 5-51)
㉖
㉗

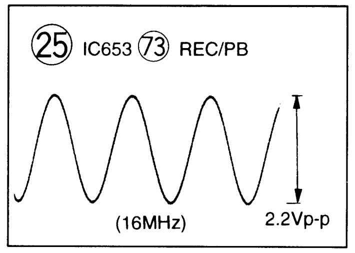
-SIGNAL PATH

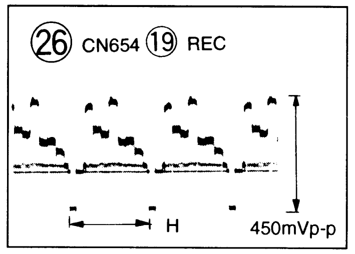
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡≫≫	
PB				

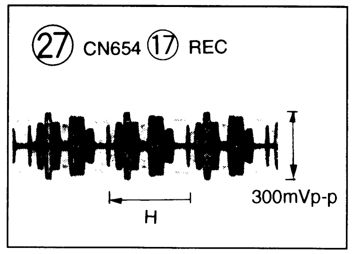
VC-158 BOARD





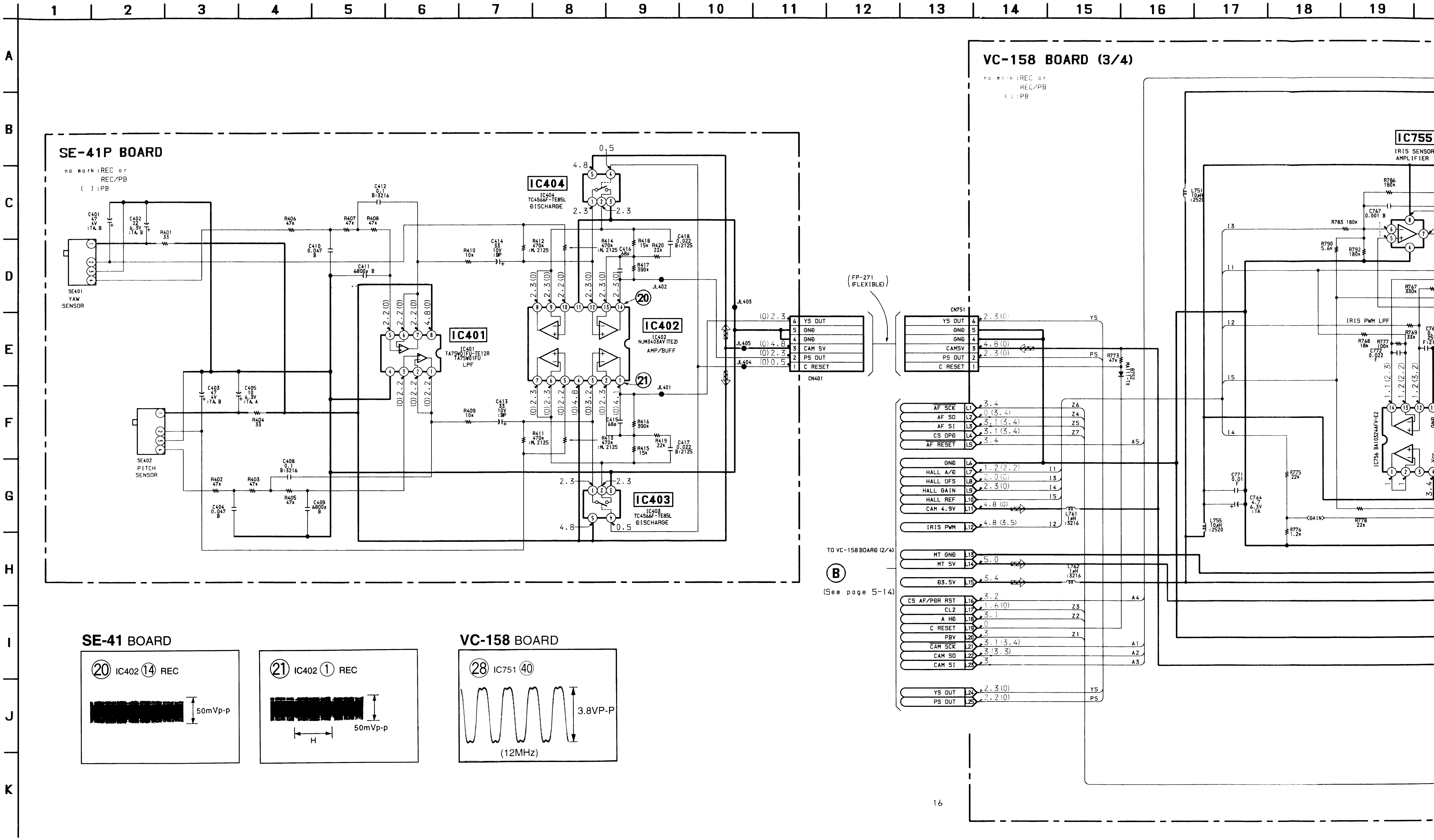






VC-158 (CAMERA-SHAKE CORRECTION), SE-41P (CAMERA-SHAKE SENSOR) SCHEMATIC DIAGRAMS • Refer to page 5-9 for printed wiring board.

— Ref. No. : VC-158 Board; 2,000 Series, SE-41P Board; 1,000 Series —



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16
17
18
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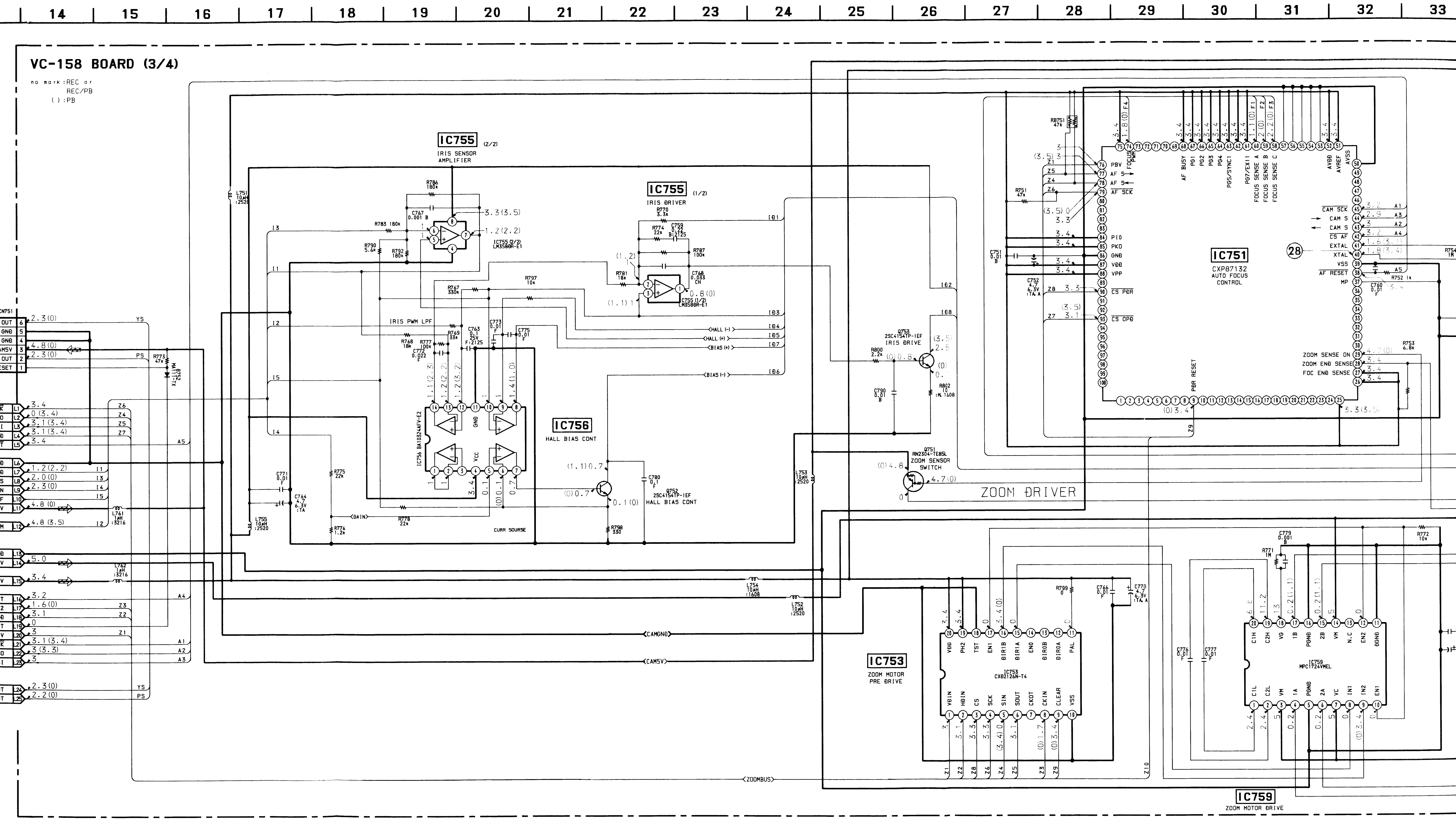
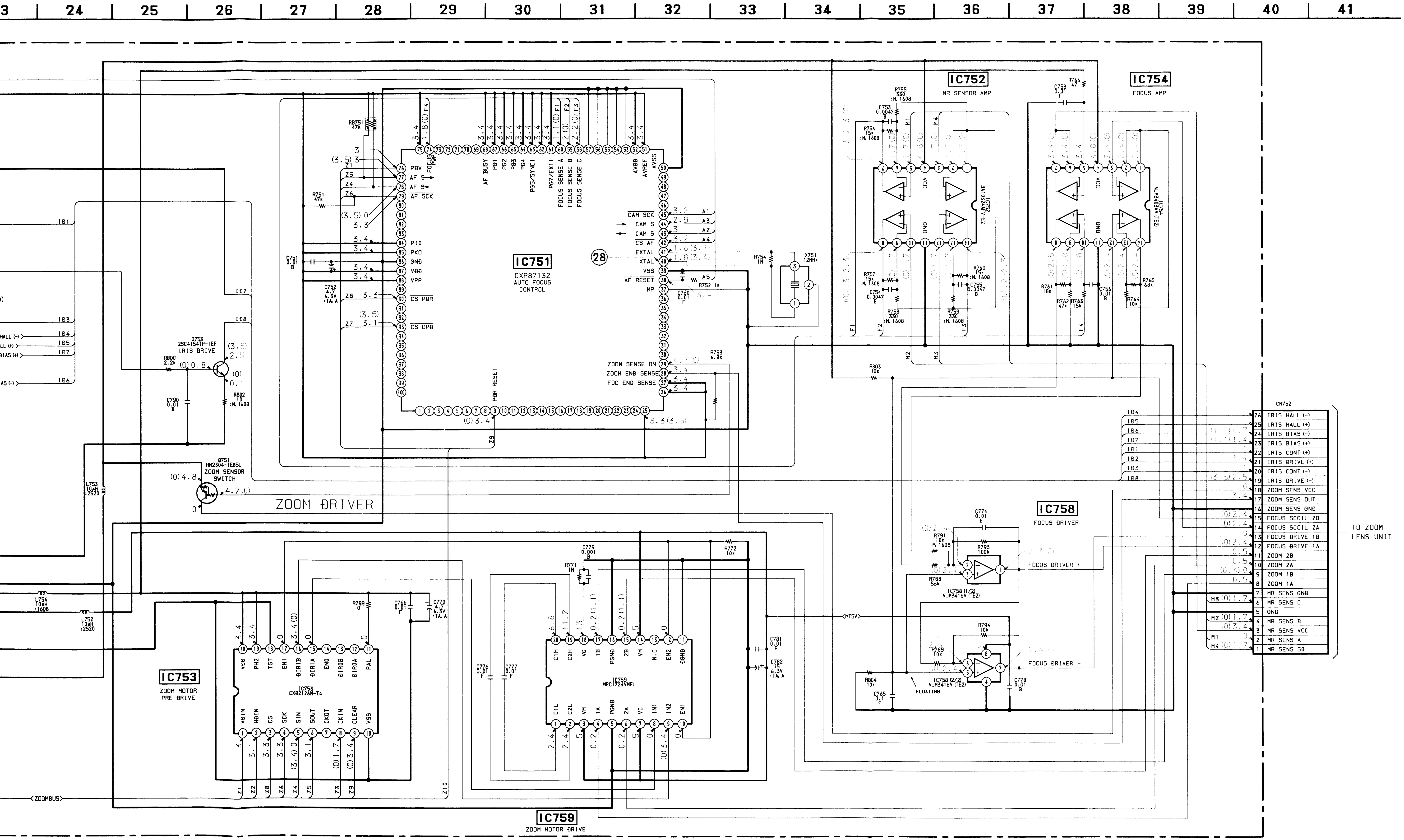
A
B
C
D
E
F
G
H
I
J
K
SE-41P BOARD
no mark : REC or REC/PB
( ) : PB
SE401 YAW SENSOR
SE402 PITCH SENSOR
IC401
TA75W01FU-TE12R TA75W01FU
LPF
IC402
NJM3403AV (TE2)
AMP/BUFF
IC403
TC4S66F-TE85L
DISCHARGE
IC404
TC4S66F-TE85L
DISCHARGE
CN401
YS OUT
GND
GND
CAM 5V
PS OUT
C RESET
JL401
JL402
JL403
JL404
JL405
(FP-271 (FLEXIBLE))
VC-158 BOARD (3/4)
no mark : REC or REC/PB
( ) : PB
CN751
IC755
IRIS SENSOR AMPLIFIER
IC756 BA10324AFV-E2
IRIS PWM LPF
AF SCK
AF SO
AF SI
CS OPD
AF RESET
HALL A/D
HALL OFS
HALL GAIN
HALL REF
CAM 4.9V
IRIS PWM
MT GND
MT 5V
D3.5V
CS AF/PDR RST
CL2
A HD
PBV
CAM SCK
CAM SO
CAM SI
TO VC-158 BOARD (2/4)
B
(See page 5-14)
16
SE-41 BOARD
⑳ IC402 ⑭ REC
50mVp-p
㉑ IC402 ① REC
H
50mVp-p
VC-158 BOARD
㉘ IC751 ㊵
3.8VP-P
(12MHz)

VC-158 BOARD (3/4)

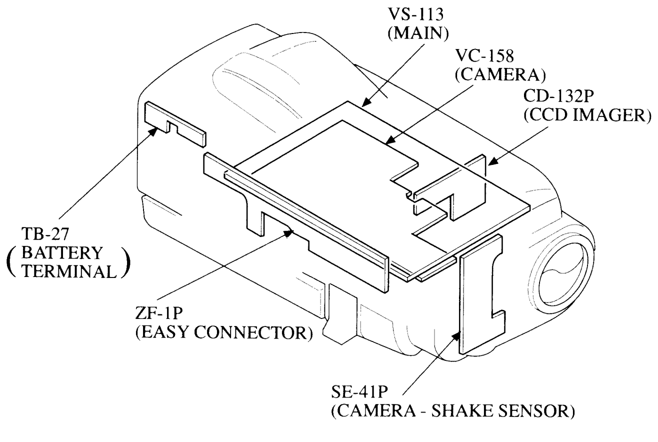
no mark : REC or
REC/PB
( ) : PB



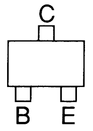
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
IC755 (2/2)
IRIS SENSOR AMPLIFIER
IC755 (2/2) LM3580R-E1
IC755 (1/2)
IRIS DRIVER
IC755 (1/2) LM3580R-E1
IRIS PWM LPF
IC756
HALL BIAS CONT
IC756 BA10324FV-E2
CURR SOURSE
Q752 2SC4154TP-1EF HALL BIAS CONT
Q753 2SC4154TP-1EF IRIS DRIVE
Q751 RN2304-TE85L ZOOM SENSOR SWITCH
ZOOM DRIVER
IC751
CXP87132
AUTO FOCUS CONTROL
PBV
AF S
AF SCK
P10
PKO
GND
VDD
VPP
CS PDR
CS OPD
AF BUSY
PG1
PG2
PG3
PG4
PG5/SYNC1
PG7/EX11
FOCUS SENSE A
FOCUS SENSE B
FOCUS SENSE C
AVDD
AVREF
AVSS
CAM SCK
CAM S
CS AF
EXTAL
XTAL
VSS
AF RESET
MP
ZOOM SENSE ON
ZOOM END SENSE
FOC END SENSE
PDR RESET
28
IC753
ZOOM MOTOR PRE DRIVE
IC753 CXD2126N-T4
VDD
PH2
TST
EN1
DIR1B
DIR1A
EN0
DIR0B
DIR0A
PAL
VDIN
HDIN
CS
SCK
SIN
SOUT
CKOT
CKIN
CLEAR
VSS
IC759
ZOOM MOTOR DRIVE
IC759 MPC1724VMEL
C1H
C2H
VG
1B
PGND
2B
VM
N.C
EN2
DGND
C1L
C2L
VM
1A
PGND
2A
VC
IN1
IN2
EN1
CN751
OUT
GND
GND
AMSV
OUT
ESET
YS
PS
Z6
Z4
Z5
Z7
A5
I1
I3
I4
I5
I2
A4
Z3
Z2
Z1
A1
A2
A3
HALL (-)
HALL (+)
BIAS (+)
BIAS (-)
GAIN
CAMGND
CAM5V
ZOOMBUS
I01
I02
I03
I04
I05
I06
I07
I08
L751 10μH :2520
L755 10μH :2520
L761 1μH :3216
L762 1μH :3216
L754 10μH :1608
L752 10μH :2520
L753 10μH :2520



23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
IC751
CXP87132
AUTO FOCUS CONTROL
IC752
MR SENSOR AMP
IC754
FOCUS AMP
IC758
FOCUS DRIVER
IC753
ZOOM MOTOR PRE DRIVE
IC753 CXD2126N-T4
IC759
ZOOM MOTOR DRIVE
IC759 MPC1724VMEL
IC758 (1/2) NJM3416V (TE2)
IC758 (2/2) NJM3416V (TE2)
FLOATING
FOCUS DRIVER +
FOCUS DRIVER -
Q753 2SC4154TP-1EF IRIS DRIVE
Q751 RN2304-TE85L ZOOM SENSOR SWITCH
ZOOM DRIVER
X751 12MHz
(MT5V)
(ZOOMBUS)
CN752
1 MR SENS S0
2 MR SENS A
3 MR SENS VCC
4 MR SENS B
5 GND
6 MR SENS C
7 MR SENS GND
8 ZOOM 1A
9 ZOOM 1B
10 ZOOM 2A
11 ZOOM 2B
12 FOCUS DRIVE 1A
13 FOCUS DRIVE 1B
14 FOCUS SCOIL 2A
15 FOCUS SCOIL 2B
16 ZOOM SENS GND
17 ZOOM SENS OUT
18 ZOOM SENS VCC
19 IRIS DRIVE (-)
20 IRIS CONT (-)
21 IRIS DRIVE (+)
22 IRIS CONT (+)
23 IRIS BIAS (+)
24 IRIS BIAS (-)
25 IRIS HALL (+)
26 IRIS HALL (-)
TO ZOOM LENS UNIT
PBV
AF S
AF SCK
PIO
PKO
GND
VDD
VPP
CS PDR
CS OPD
AF BUSY
PG1
PG2
PG3
PG4
PG5/SYNC1
PG7/EX11
FOCUS SENSE A
FOCUS SENSE B
FOCUS SENSE C
AVDD
AVREF
AVSS
CAM SCK
CAM S
CS AF
EXTAL
XTAL
VSS
AF RESET
MP
ZOOM SENSE ON
ZOOM END SENSE
FOC END SENSE
PDR RESET
VDD PH2 TST EN1 DIR1B DIR1A END DIR0B DIR0A PAL
VDIN HBIN CS SCK SIN SOUT CKOT CKIN CLEAR VSS
C1H C2H VG 1B PGND 2B VM N.C EN2 DGND
C1L C2L VM 1A PGND 2A VC IN1 IN2 EN1
R751 47k
RB751 47k
R752 1k
R753 6.8k
R754 1M
R755 330
R756 15k
R757 15k
R758 330
R759 330
R760 15k
R761 18k
R762 47k
R763 15k
R764 10k
R765 68k
R766 47
R768 56k
R771 1M
R772 10k
R789 10k
R791 10k
R793 100k
R794 10k
R799 0
R800 2.2k
R802 10
R803 10k
R804 10k
C751 0.01
C752 4.7 6.3V
C753 0.0047
C754 0.0047
C755 0.0047
C756 0.01
C758 0.01
C760 0.01
C765 0.1
C766 0.01
C770 4.7 6.3V
C774 0.01
C776 0.01
C777 0.01
C778 0.01
C779 0.001
C781 0.01
C782 15 6.3V
C790 0.01
L752 10μH
L753 10μH
L754 10μH


VS-113
(MAIN)
VC-158
(CAMERA)
CD-132P
(CCD IMAGER)
TB-27
(BATTERY TERMINAL)
ZF-1P
(EASY CONNECTOR)
SE-41P
(CAMERA - SHAKE SENSOR)

- Chip parts (3-terminal transistor)

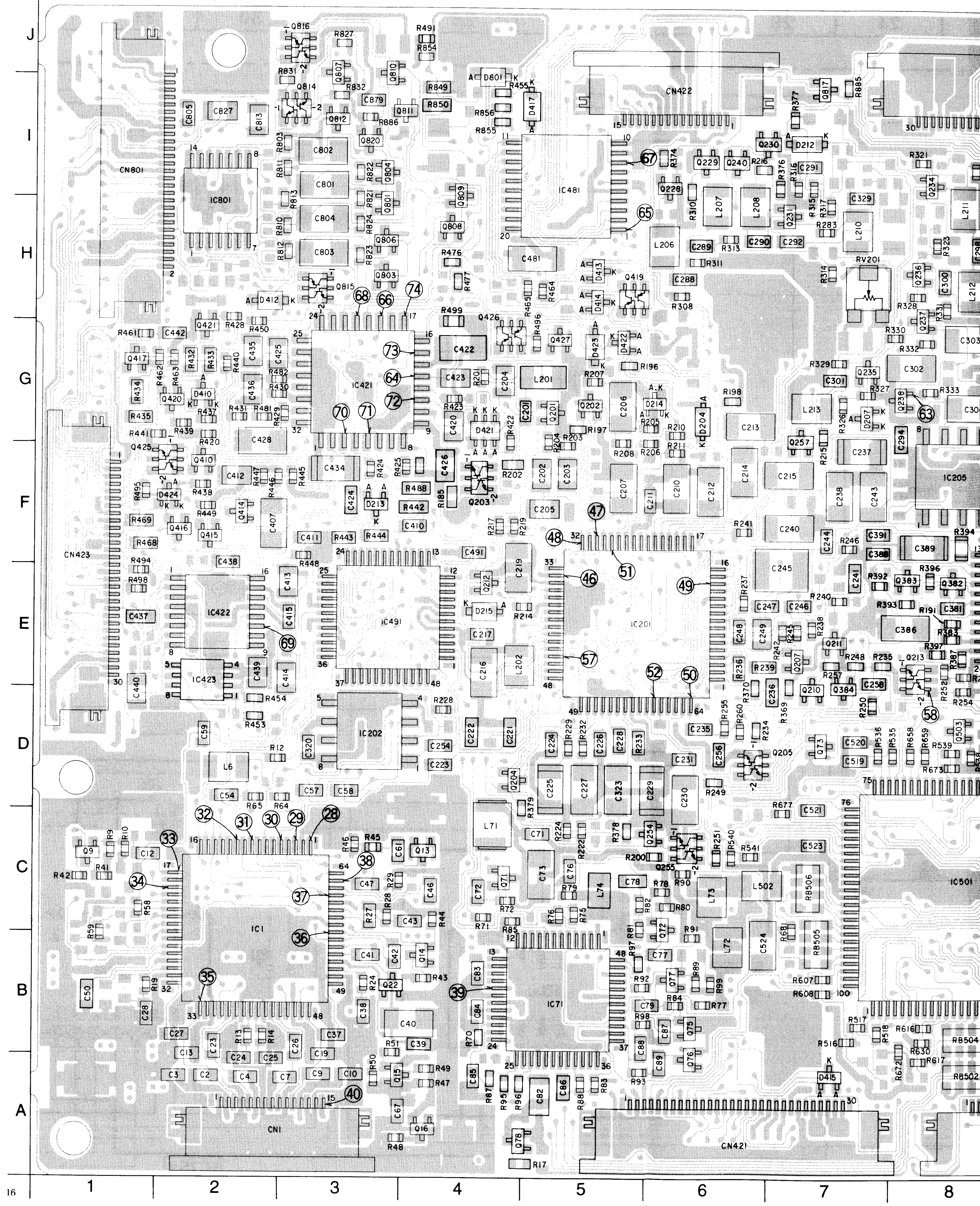


C: Collector
B: Base
E: Emitter

VS-113 (MAIN) PRINTED WIRING BOARD

— Ref. No. : VS-113 Board; 1,000 Series —

VS-113 BOARD (SIDE A)


J
I
H
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D
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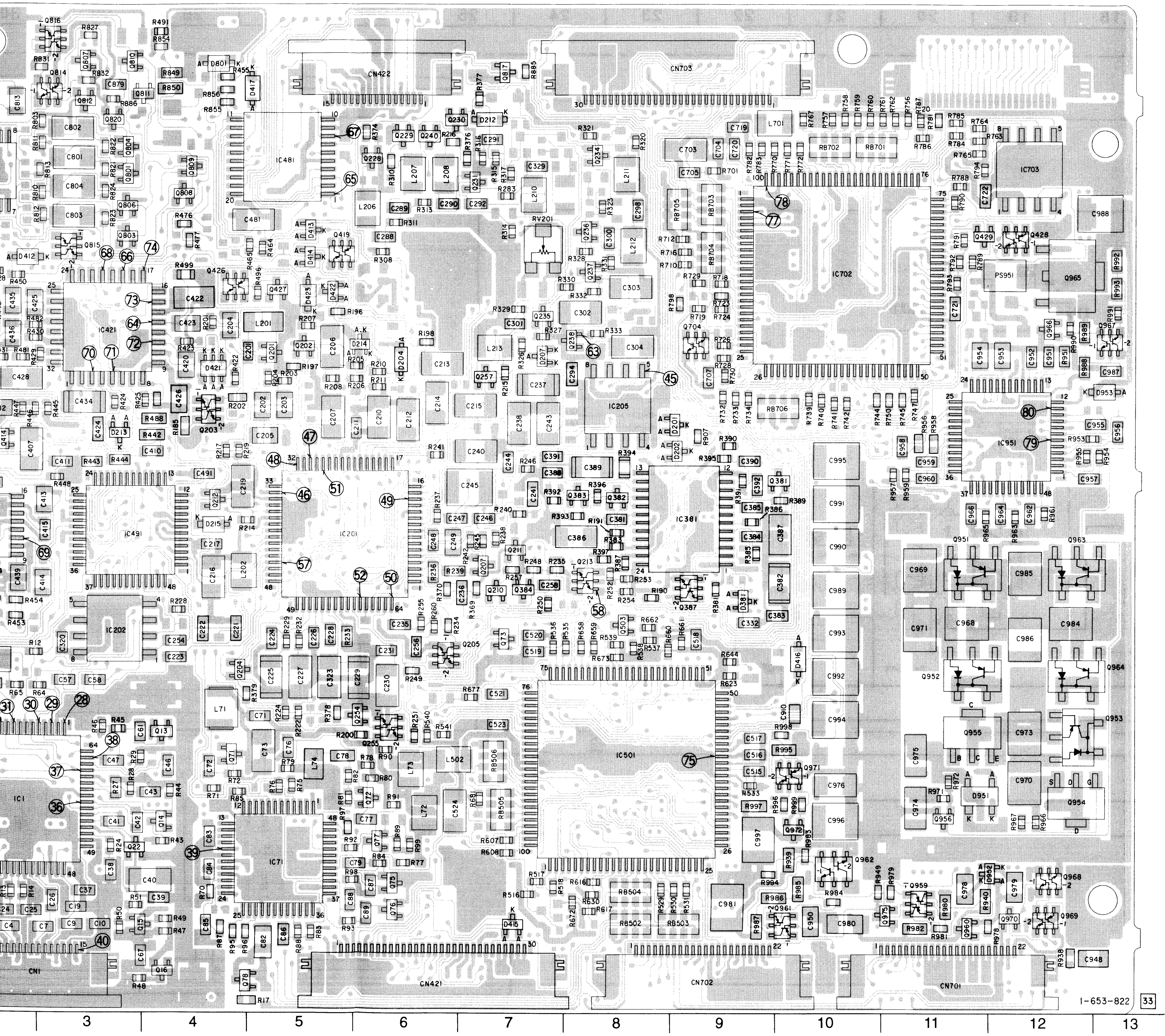
CN801
IC801
CN422
IC481
CN423
IC421
IC422
IC423
IC491
IC201
IC202
IC205
IC1
IC71
IC501
CN1
CN421


CN422
CN703
IC481
IC421
IC491
IC201
IC202
IC205
IC381
IC702
IC703
IC951
IC501
IC71
IC1
CN1
CN421
CN702
CN701
RV201
PS951
1-653-822
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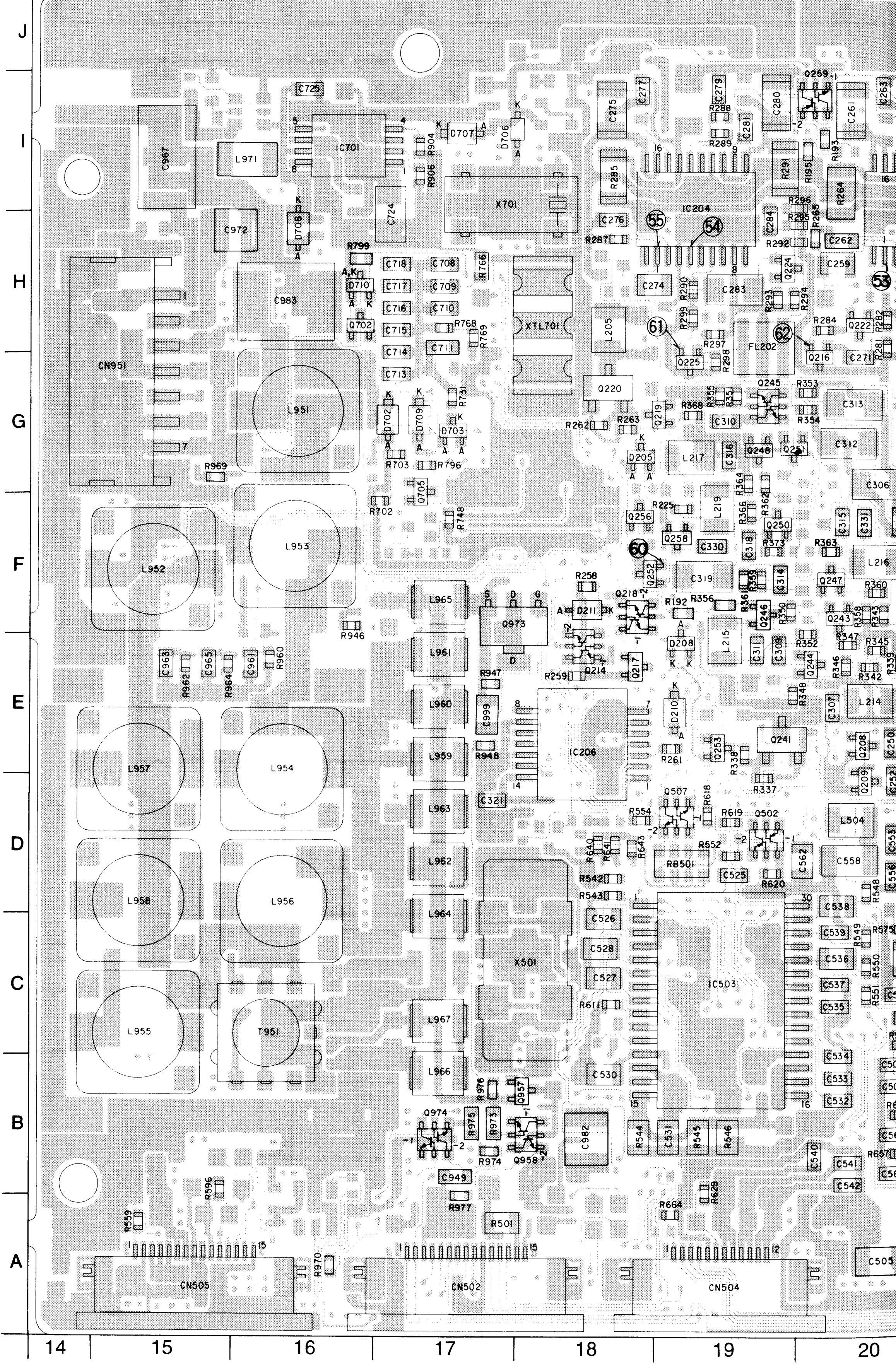
VS-113 BOARD (SIDE B)


J
I
H
G
F
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D
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B
A
CN951
IC701
X701
XTL701
IC204
FL202
IC206
X501
IC503
T951
CN505
CN502
CN504
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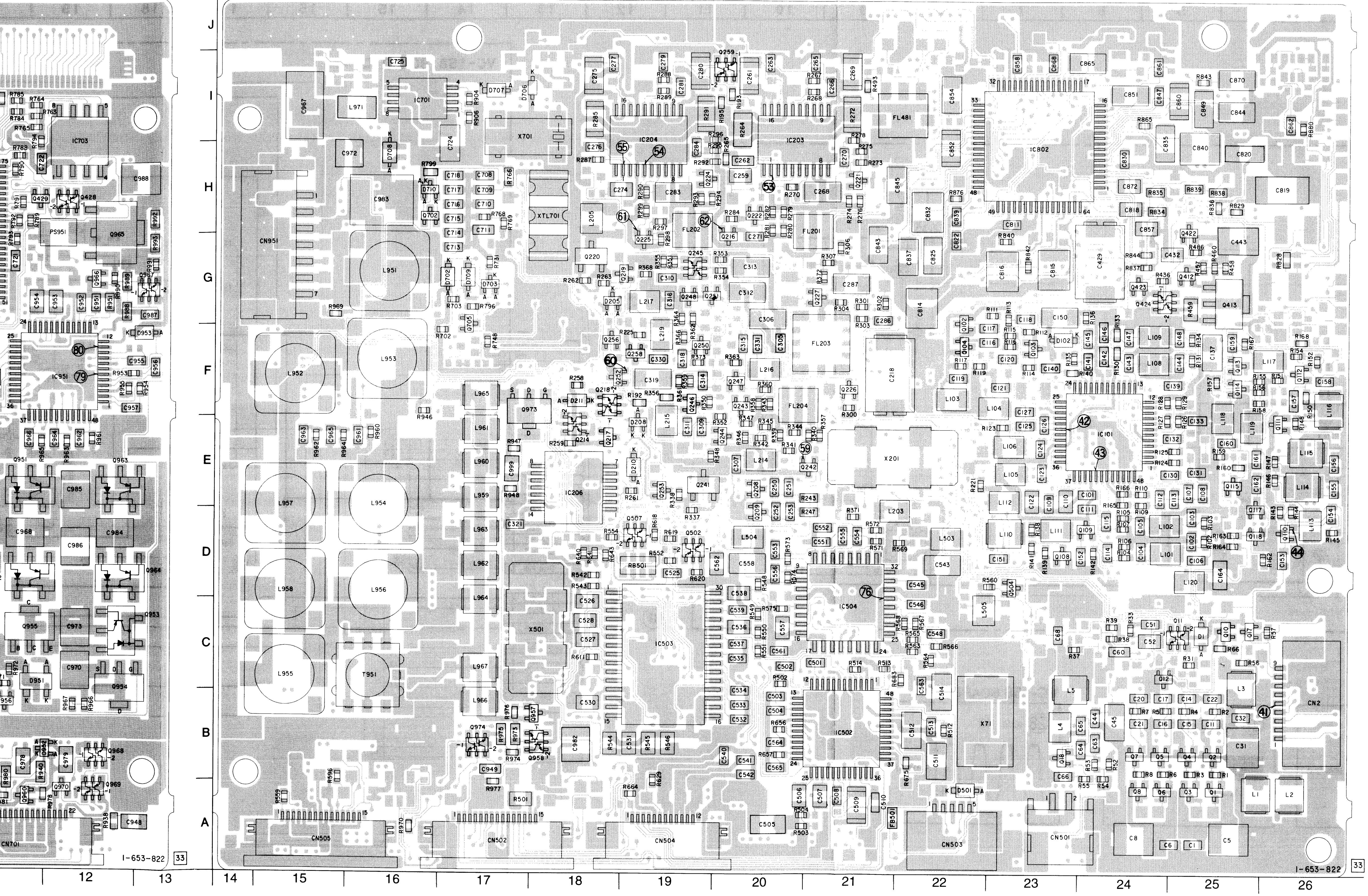
20

VS-113 BOARD (SIDE B)


J
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23
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26
1-653-822
33
CN951
CN505
CN502
CN504
CN503
CN501
CN2
CN701
IC701
IC703
IC204
IC203
IC802
IC951
IC206
IC503
IC504
IC502
IC101
X701
XTL701
X501
X201
X71
FL481
FL202
FL201
FL203
FL204
T951
L951
L952
L953
L954
L955
L956
L957
L958

VS-113 BOARD

C001	A-25
C002	A-2
C003	A-2
C004	A-2
C005	A-25
C006	A-25
C007	A-3
C008	A-24
C009	A-3
C010	A-3
C011	B-25
C012	C-1
C013	B-2
C014	B-25
C015	B-25
C016	B-24
C017	B-24
C019	B-3
C020	B-24
C021	B-24
C022	B-25
C023	B-2
C024	A-2
C025	A-2
C026	B-3
C027	B-2
C028	B-1
C031	B-25
C032	B-25
C037	B-3
C038	B-3
C039	B-4
C040	B-4
C041	B-3
C042	B-3
C043	C-4
C044	B-24
C045	B-24
C046	C-4
C047	C-3
C050	B-1
C051	C-24
C052	C-24
C054	D-2
C057	D-3
C058	D-3
C059	D-2
C060	C-24
C061	C-3
C063	B-24
C064	B-24
C065	B-24
C066	B-23
C067	A-3
C068	C-23
C071	C-5
C072	C-4
C073	C-5
C076	C-5
C077	B-6
C078	C-5
C079	B-5
C082	A-5
C083	B-4
C084	B-4
C085	A-4
C086	A-5
C087	B-6
C088	B-5
C089	A-6
C101	E-24
C102	D-25
C103	D-25
C104	D-24
C105	D-24
C106	D-25
C107	E-25
C108	E-25
C109	E-23
C110	E-23
C111	E-24
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C143	F-24
C144	F-25
C145	F-24
C146	F-24
C147	F-24
C148	F-25
C150	G-23
C151	D-23
C152	D-24
C153	D-26
C154	D-26
C155	E-26
C156	E-26
C157	F-25
C158	F-25
C159	F-25
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C161	E-25
C162	E-25
C164	D-25
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C211	F-6
C212	F-6
C213	G-6
C214	F-6
C215	F-7
C216	E-4
C217	E-4
C218	F-21
C219	E-4
C221	D-4
C222	D-4
C223	D-4
C224	D-5
C225	D-5
C226	D-5
C227	D-5
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C243	F-7
C244	F-7
C245	E-7
C246	E-7
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C250	E-20
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C252	D-20
C253	D-20
C254	D-4
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C258	D-7
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C262	H-20
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C294	G-8
C298	H-8
C300	H-8
C301	G-7
C302	G-8
C303	G-8
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C314	F-19
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C318	F-19
C319	F-19
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C323	D-5
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C383	D-9
C384	E-9
C385	E-9
C386	E-8
C387	E-9
C388	F-7
C389	F-8
C390	F-9
C391	F-7
C392	E-9
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C411	F-3
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C514	C-22
C515	C-9
C516	C-9
C517	C-9
C518	D-9
C519	D-7
C520	D-7
C521	D-7
C523	C-7
C524	B-6
C525	D-19
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C527	C-18
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C530	B-18
C531	B-19
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C552	D-21
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C554	D-21
C555	D-21
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C557	C-20
C558	D-20
C561	C-20
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C563	C-22
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C705	H-9
C707	G-9
C708	H-17
C709	H-17
C710	H-17
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C719	I-9
C720	I-9
C721	G-11
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C724	H-17
C725	I-16
C801	I-3
C802	I-3
C803	H-3
C804	H-3
C805	I-2
C811	H-23
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C814	G-22
C815	G-23
C816	G-23
C818	H-24
C819	H-26
C820	H-25
C822	G-22
C825	G-22
C827	I-3
C830	H-24
C832	H-22
C835	I-21
C837	G-22
C839	H-22
C840	H-25
C843	G-21
C844	I-25
C845	H-22
C847	I-24
C849	I-25
C851	I-24
C852	H-22
C854	I-22
C857	H-24
C858	I-23
C860	I-25
C861	I-24
C862	I-25
C865	I-24
C868	I-23
C870	I-25
C872	H-24
C879	I-3
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C949	B-17
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C951	G-12
C952	G-12
C953	G-12
C954	G-11
C955	F-13
C956	F-13
C957	F-12
C958	F-11
C959	F-11
C960	F-11
C961	E-16
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C967	I-15
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C969	E-11
C970	C-12
C971	D-11
C972	H-16
C973	C-12
C974	B-11
C975	C-11
C976	C-10
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C979	B-12
C980	A-10
C981	B-9
C982	B-18
C983	H-16
C984	D-12
C985	E-12
C986	D-12
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C991	E-10
C992	D-10
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C994	C-10
C995	F-10
C996	B-10
C997	B-9
C999	E-17
CN001	A-2
CN002	C-26
CN421	A-6
CN422	I-6
CN423	F-1
CN501	A-23
CN502	A-17
CN503	A-22
CN504	A-19
CN505	A-15
CN701	A-11
CN702	A-9
CN703	I-9
CN801	I-1
CN951	G-15
D001	C-25
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R155	F-25
R156	F-25
R157	F-25
R158	F-25
R159	E-25
R160	E-25
R162	D-26
R163	D-25
R164	D-25
R165	E-24
R166	E-24
R167	F-25
R185	F-4
R190	D-8
R191	E-8
R192	F-19
R193	I-20
R195	I-20
R196	G-5
R197	G-5
R198	G-6
R200	C-6
R201	G-4
R203	F-5
R204	G-5
R205	G-6
R206	F-6
R207	G-5
R208	F-5
R210	G-6
R211	F-6
R214	E-4
R215	F-7
R216	I-6
R217	F-4
R219	F-4
R221	E-22
R222	C-5
R224	C-5
R225	F-19
R228	D-4
R229	D-5
R232	D-5
R233	D-5
R234	D-6
R235	E-7
R236	E-6
R237	E-6
R238	E-7
R239	E-6
R240	E-7
R241	F-6
R242	E-7
R243	E-21
R245	E-7
R246	F-7
R247	D-21
R248	E-7
R249	D-6
R250	D-7
R251	C-6
R252	E-8
R253	E-8
R254	D-8
R255	D-6
R256	D-8
R257	E-7
R258	F-18
R259	E-18
R260	D-6
R261	E-19
R262	G-18
R263	G-18
R264	I-20
R265	H-20
R267	I-21
R268	I-21
R270	H-20
R272	I-21
R273	H-21
R274	H-21
R275	H-21
R276	H-21
R278	I-21
R279	H-20
R280	H-20
R281	H-20
R282	H-20
R283	H-7
R284	H-20
R285	I-18
R287	H-18
R288	I-19
R289	I-19
R290	H-19
R291	I-19
R292	H-20
R293	H-19
R294	H-19
R295	H-20
R296	I-20
R297	H-19
R298	G-19
R299	H-19
R300	F-21
R301	G-21
R302	G-21
R303	G-21
R304	G-21
R306	G-21
R307	G-21
R308	H-6
R310	H-6
R311	H-6
R313	H-6
R314	H-7
R315	I-7
R316	I-7
R317	H-7
R320	I-8
R321	I-8
R323	H-8
R326	G-7
R327	G-7
R328	H-8
R329	G-7
R330	G-8
R331	H-8
R332	G-8
R333	G-8
R337	D-19
R338	E-19
R339	E-20
R340	E-21
R341	E-20
R342	E-20
R343	F-20
R344	E-20
R345	E-20
R346	E-20
R347	E-20
R348	E-20
R350	F-19
R351	G-19
R353	G-20
R354	G-20
R355	G-19
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R364	G-19
R366	F-19
R368	G-19
R369	E-7
R370	D-6
R371	D-21
R372	G-21
R373	F-19
R374	I-6
R376	H-7
R377	I-7
R378	C-5
R379	D-4
R381	D-9
R383	E-8
R385	E-9
R386	E-9
R387	E-8
R389	E-9
R392	F-9
R391	E-9
R392	E-7
R393	E-8
R394	F-8
R395	F-9
R396	E-8
R397	E-8
R420	G-2
R422	G-4
R423	G-4
R424	F-3
R425	F-3
R428	H-2
R429	G-2
R430	G-2
R431	G-2
R432	G-2
R433	G-2
R434	G-1
R435	G-1
R436	G-24
R437	G-2
R438	F-2
R439	G-2
R440	G-2
R441	G-1
R442	F-4
R443	F-3
R444	F-3
R445	F-3
R446	F-2
R447	F-2
R448	F-3
R449	F-2
R450	G-2
R453	D-2
R454	D-2
R455	I-5
R457	G-25
R458	G-25
R459	G-25
R460	G-25
R461	G-1
R462	G-2
R463	G-2
R464	H-5
R465	H-5
R468	F-1
R469	F-1
R476	H-4
R477	H-4
R481	G-2
R482	G-2
R486	G-25
R488	F-4
R491	J-4
R493	I-21
R494	E-1
R495	F-1
R496	G-5
R498	E-1
R499	G-4
R501	A-17
R502	C-20
R503	A-20
R504	A-20
R512	B-22
R513	C-21
R514	C-21
R516	B-7
R517	B-7
R518	B-7
R529	B-8
R530	B-9
R531	B-9
R535	D-8
R536	D-7
R537	D-8
R538	D-8
R539	D-8
R540	C-6
R541	C-6
R542	D-18
R543	D-18
R544	B-18
R545	B-19
R546	B-19
R548	D-20
R549	C-20
R550	C-20
R551	C-20
R552	D-19
R553	D-19
R554	D-18
R559	A-15
R560	D-23
R563	C-22
R564	C-22
R565	C-22
R566	C-22
R567	C-22
R568	C-22
R569	D-22
R571	D-21
R572	D-21
R573	D-20
R574	D-20
R575	C-20
R596	B-15
R607	B-7
R608	B-7
R611	C-18
R616	B-8
R617	A-8
R618	D-19
R619	D-19
R620	D-19
R623	D-9
R629	B-19
R630	B-8
R640	D-18
R641	D-18
R643	D-18
R644	D-9
R656	B-20
R657	B-20
R658	D-8
R659	D-8
R660	D-8
R661	D-9
R662	D-8
R664	A-19
R672	B-8
R673	D-8
R675	B-22
R677	C-7
R681	C-7
R683	C-22
R701	H-9
R702	F-17
R703	G-17
R710	H-9
R712	H-9
R716	H-9
R718	G-9
R719	G-9
R723	G-9
R724	G-9
R726	G-9
R728	G-9
R729	G-9
R730	G-9
R731	G-17
R732	F-9
R733	F-9
R734	F-9
R739	F-10
R740	F-10
R741	F-10
R742	F-10
R744	F-10
R745	F-11
R747	F-11
R748	F-17
R750	F-11
R756	I-11
R757	I-10
R758	I-10
R759	I-10
R760	I-10
R761	I-11
R762	I-11
R763	I-11
R764	I-11
R765	I-11
R766	H-17
R767	I-10
R768	H-17
R769	H-17
R770	I-9
R771	I-10
R772	I-10
R781	I-11
R782	I-9
R783	I-9
R784	I-11
R785	I-11
R786	I-11
R787	I-11
R788	H-11
R789	H-11
R790	H-11
R791	H-11
R792	H-11
R793	G-11
R794	I-11
R796	G-17
R798	G-9
R803	I-3
R810	H-3
R811	I-3
R812	H-3
R813	H-3
R821	H-3
R822	I-3
R823	H-3
R824	H-3
R827	J-3
R828	G-26
R829	H-25
R831	I-3
R832	I-3
R834	H-24
R835	H-24
R836	H-25
R837	G-24
R838	H-25
R839	H-25
R840	G-23
R842	G-23
R843	I-25
R844	G-24
R849	I-4
R850	I-4
R854	J-4
R855	I-4
R856	I-4
R865	I-24
R876	H-22
R880	I-26
R885	I-7
R886	I-3
R904	I-17
R906	I-17
R907	F-9
R938	A-12
R939	B-10
R940	B-11
R941	F-11
R946	F-16
R947	E-17
R948	E-17
R949	B-10
R951	G-12
R952	F-12
R953	F-12
R954	F-13
R955	F-12
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R957	F-11
R958	F-11
R959	F-11
R960	E-16
R961	E-12
R962	E-15
R963	E-12
R964	E-15
R965	E-11
R966	B-12
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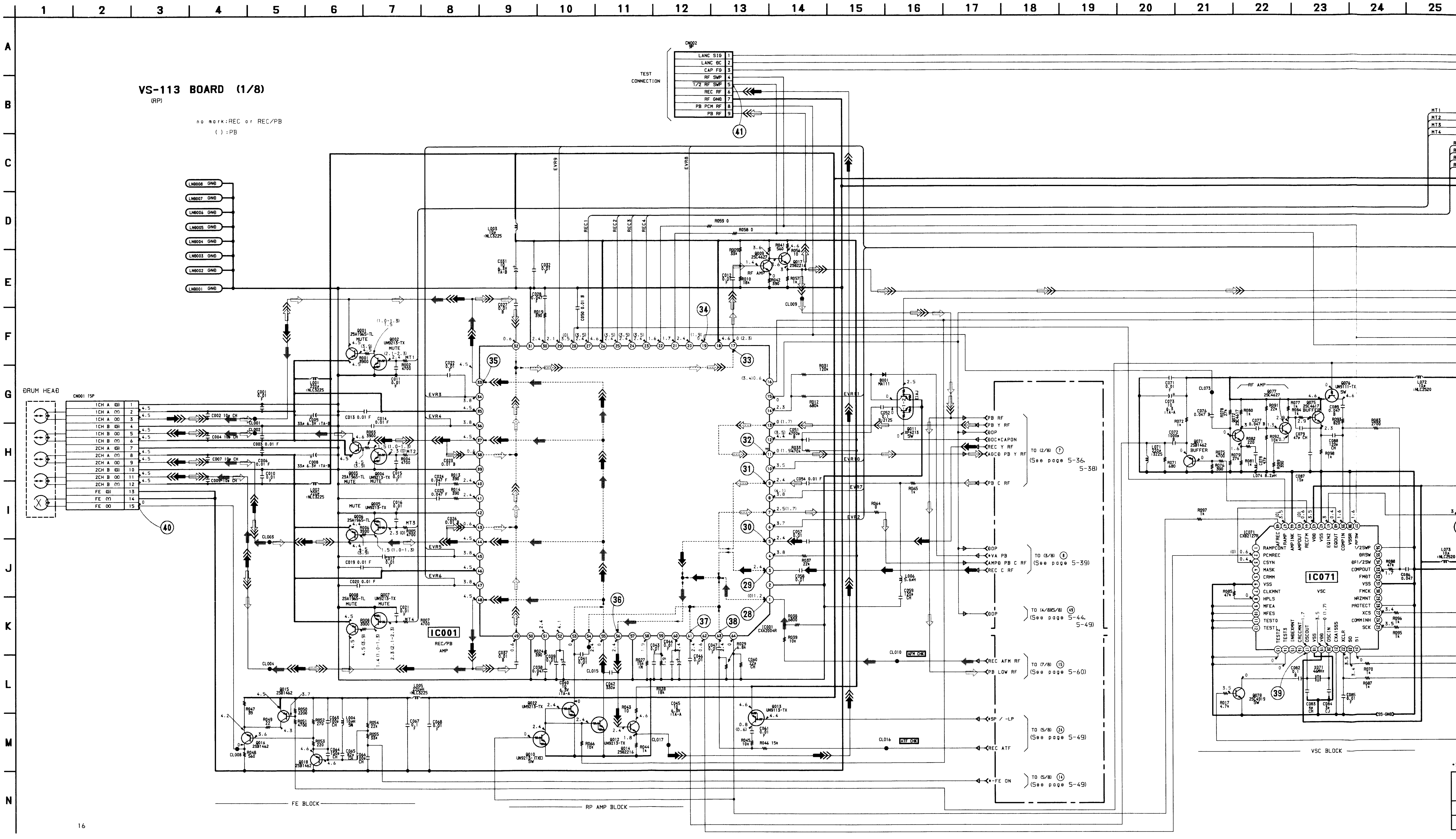
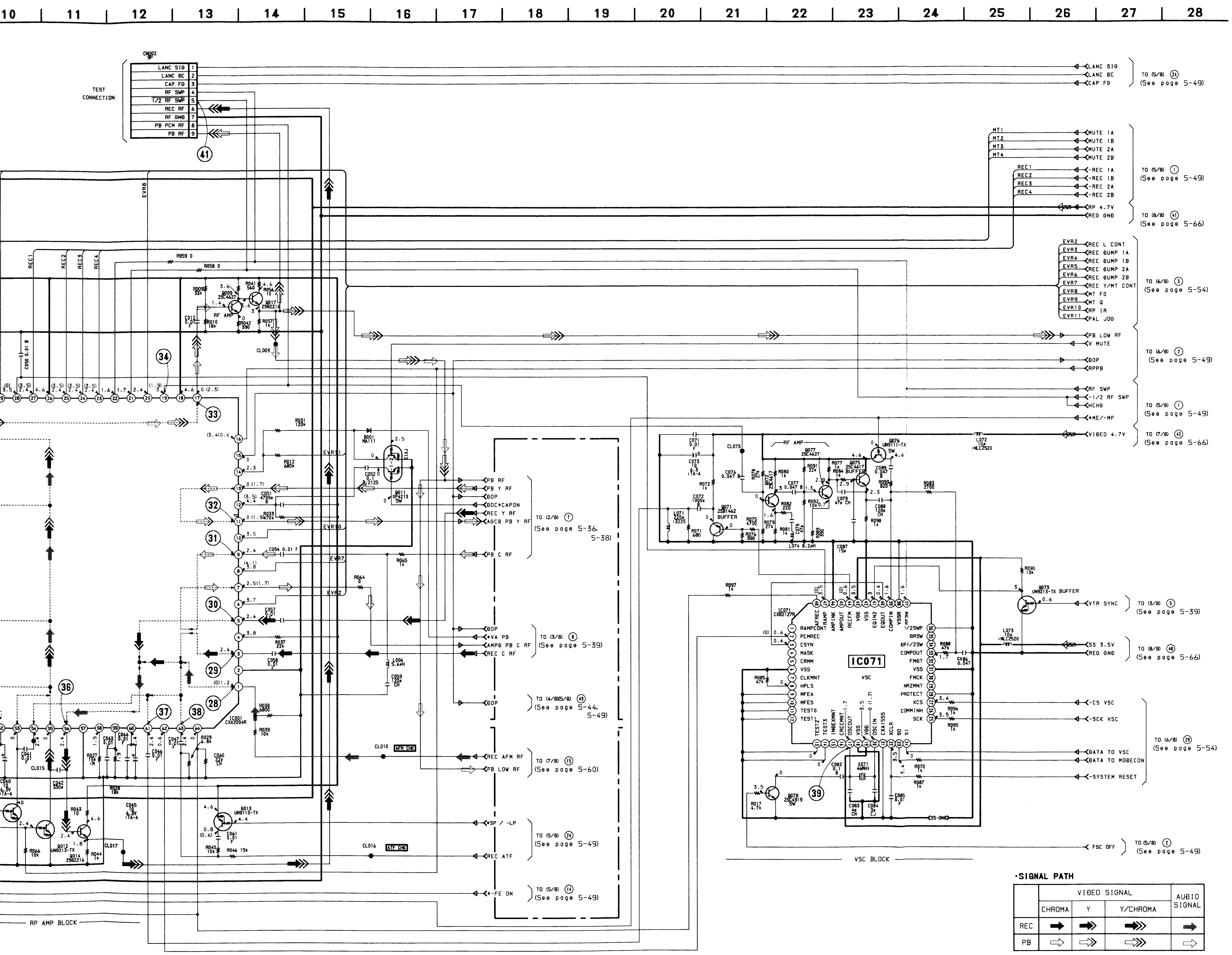
R976	B-17
R977	A-17
R978	A-11
R979	B-11
R980	B-11
R981	A-11
R982	A-11
R983	B-10
R984	B-10
R985	B-10
R986	B-9
R987	A-9
R988	G-12
R989	G-12
R990	G-12
R991	G-13
R992	H-13
R993	G-13
R994	B-9
R995	C-10
R996	B-10
R997	B-9
R998	C-10
R999	B-10
RB501	D-19
RB502	A-8
RB503	A-9
RB504	B-8
RB505	B-7
RB506	C-7
RB701	I-10
RB702	I-10
RB703	H-9
RB704	H-9
RB705	H-9
RB706	F-10
RV201	H-7
T951	C-16
X071	B-22
X201	E-22
X501	C-18
X701	I-17
XTL701	H-18

VS-113 (VTR 1) SCHEMATIC DIAGRAM • Refer to page 5-24 for printed wiring board.

— Ref. No. : VS-113 Board; 4,000 Series —



VS-113 BOARD (1/8)
(RP)
no mark:REC or REC/PB
( ):PB
TEST CONNECTION
CN002 9P
LANC SIG
LANC DC
CAP FG
RF SWP
1/2 RF SWP
REC RF
RF GND
PB PCM RF
PB RF
DRUM HEAD
CN001 15P
1CH A (X)
1CH A (Y)
1CH A (O)
1CH B (X)
1CH B (O)
1CH B (Y)
2CH A (X)
2CH A (Y)
2CH A (O)
2CH B (X)
2CH B (O)
2CH B (Y)
FE (X)
FE (Y)
FE (O)
IC001 CXA2004R
REC/PB AMP
RF AMP
MUTE
IC071 CXD2127R
VSC
BUFFER
TO (2/8) ⑦ (See page 5-36, 5-38)
TO (3/8) ⑧ (See page 5-39)
TO (4/8)(5/8) ⑭ (See page 5-44, 5-49)
TO (7/8) ⑮ (See page 5-60)
TO (5/8) ⑬ (See page 5-49)
TO (5/8) ⑭ (See page 5-49)
PB RF
PB Y RF
DOP
DOC•CAPON
REC Y RF
AGCD PB Y RF
PB C RF
VA PB
AMPD PB C RF
REC C RF
REC AFM RF
PB LOW RF
SP / -LP
REC ATF
FE ON
AFM CHK
ATF CHK
FE BLOCK
RP AMP BLOCK
VSC BLOCK


10
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21
22
23
24
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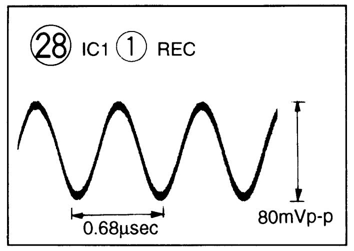
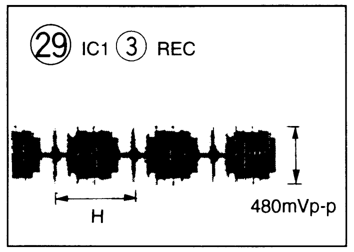
28
CN002
TEST CONNECTION
LANC SIG 1
LANC DC 2
CAP FG 3
RF SWP 4
1/2 RF SWP 5
REC RF 6
RF GND 7
PB PCM RF 8
PB RF 9
LANC SIG
LANC DC
CAP FG
TO (5/8) ㉔ (See page 5-49)
MUTE 1A
MUTE 1B
MUTE 2A
MUTE 2B
-REC 1A
-REC 1B
-REC 2A
-REC 2B
TO (5/8) ① (See page 5-49)
RP 4.7V
REG GND
TO (8/8) ㊶ (See page 5-66)
REC L CONT
REC BUMP 1A
REC BUMP 1B
REC BUMP 2A
REC BUMP 2B
REC Y/MT CONT
MT FG
MT Q
RP IR
PAL JOG
TO (6/8) ③ (See page 5-54)
PB LOW RF
V MUTE
DOP
RPPB
TO (4/8) ② (See page 5-49)
RF SWP
-1/2 RF SWP
HCHG
ME/-MP
TO (5/8) ① (See page 5-49)
VIDEO 4.7V
TO (7/8) ㊷ (See page 5-66)
RF AMP
BUFFER
PB RF
PB Y RF
DOP
DOC CAPON
REC Y RF
AGCB PB Y RF
TO (2/8) ⑦ (See page 5-36, 5-38)
PB C RF
DOP
VA PB
AMPO PB C RF
REC C RF
TO (3/8) ⑧ (See page 5-39)
DOP
TO (4/8X5/8) ㊺ (See page 5-44, 5-49)
AFM CHK
REC AFM RF
PB LOW RF
TO (7/8) ⑮ (See page 5-60)
ATF CHK
SP / -LP
REC ATF
TO (5/8) ㉔ (See page 5-49)
-FE ON
TO (5/8) ⑭ (See page 5-49)
IC001 CXA2004R
IC071 CXD2127R
IC071
VSC
VTR SYNC
TO (3/8) ⑤ (See page 5-39)
SS 3.5V
REG GND
TO (8/8) ㊽ (See page 5-66)
-CS VSC
-SCK VSC
DATA TO VSC
DATA TO MODECON
-SYSTEM RESET
TO (6/8) ㉙ (See page 5-54)
FSC OFF
TO (5/8) ② (See page 5-49)
VSC BLOCK
RP AMP BLOCK
28
29
30
31
32
33
34
36
37
38
39
41

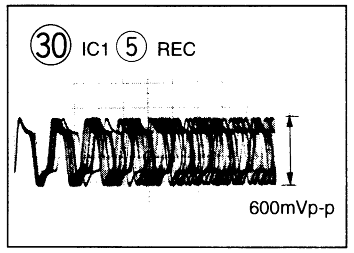
·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VS-113 BOARD


㉘ IC1 ① REC


㉙ IC1 ③ REC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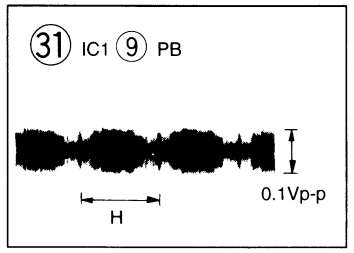
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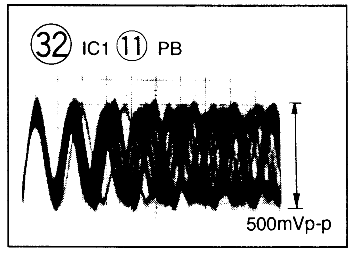
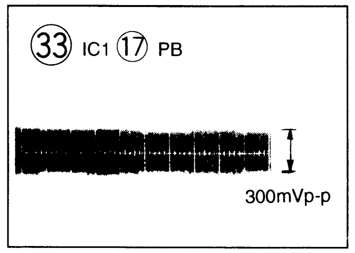
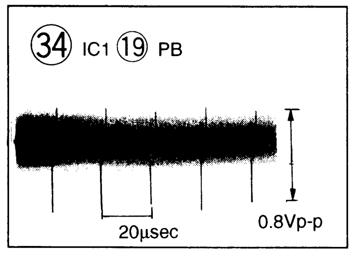
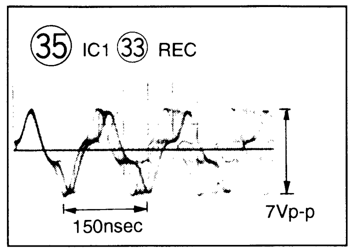
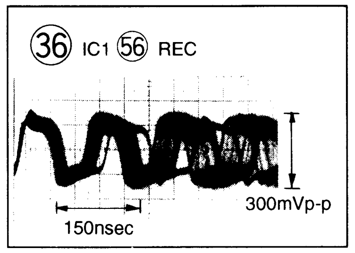
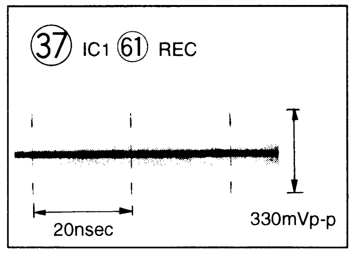

㉜ IC1 ⑪ PB

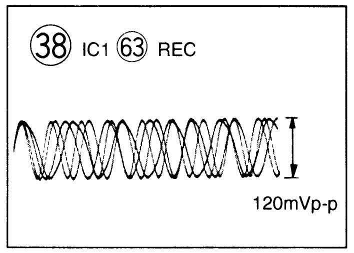

㉝ IC1 ⑰ PB

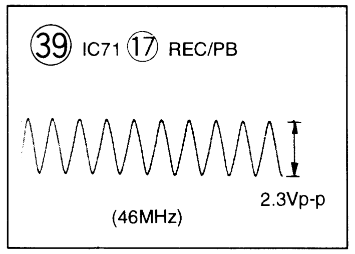

㉞ IC1 ⑲ PB

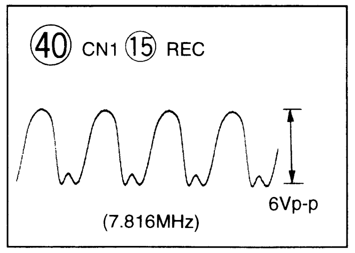

㉟ IC1 ㉝ REC

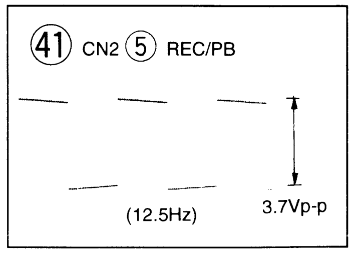

㊱ IC1 (56) REC


㊲ IC1 (61) REC


㊳ IC1 (63) REC

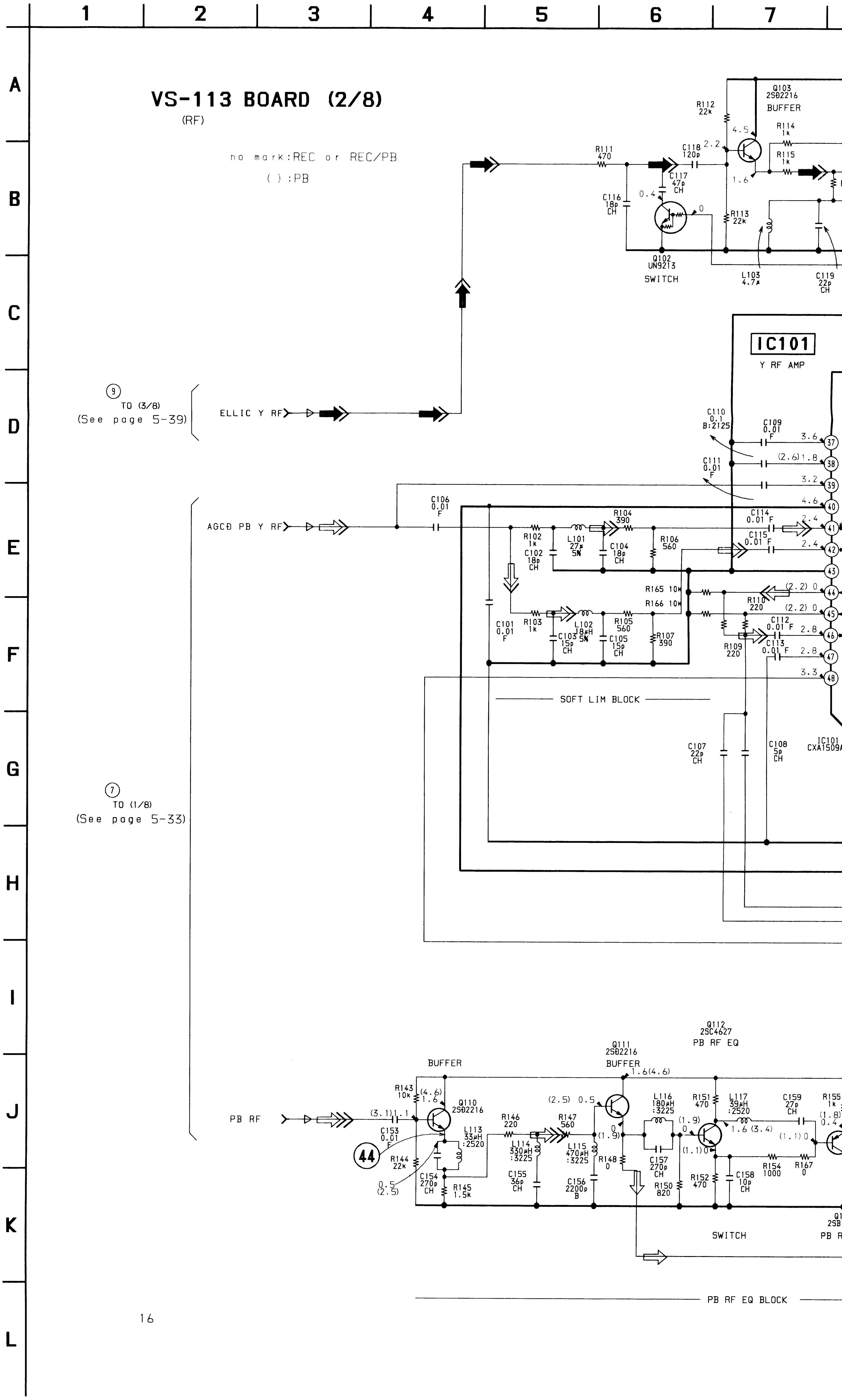

㊴ IC71 ⑰ REC/PB


㊵ CN1 ⑮ REC


㊶ CN2 ⑤ REC/PB

VS-113 (VTR 2) SCHEMATIC DIAGRAM • Refer to page 5-24 for printed wiring board.

— Ref. No. : VS-113 Board; 4,000 Series —


1
2
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4
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6
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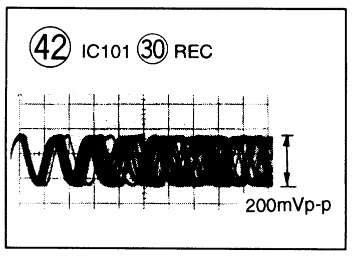
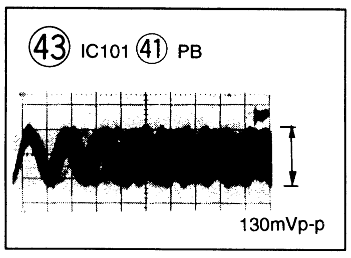
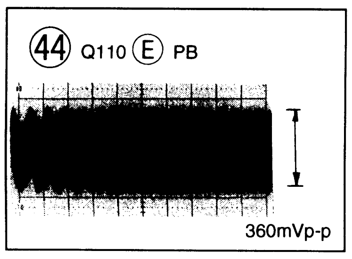
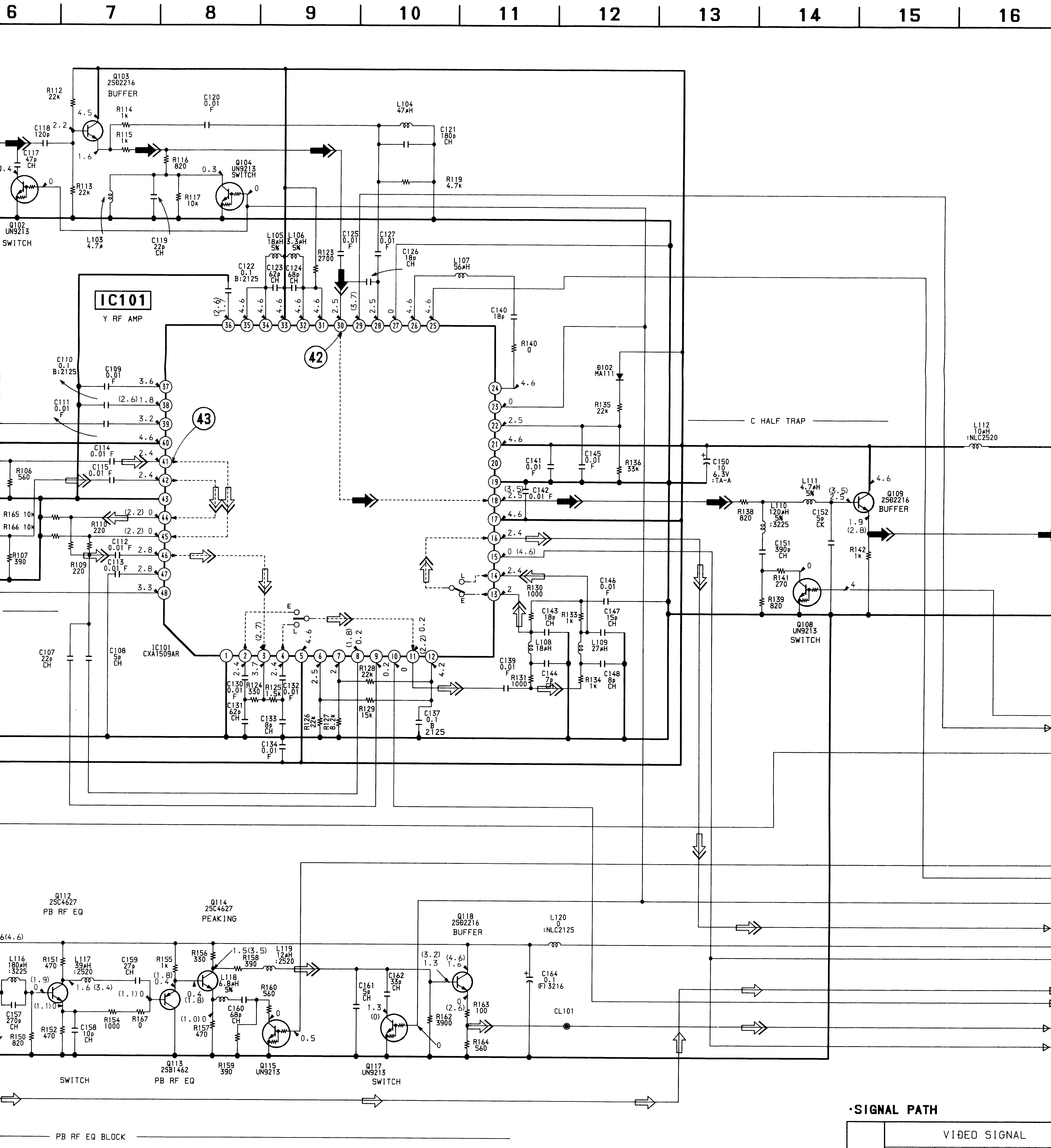
A
B
C
D
E
F
G
H
I
J
K
L
VS-113 BOARD (2/8)
(RF)
no mark:REC or REC/PB
( ):PB
⑨ TO (3/8) (See page 5-39)
ELLIC Y RF
⑦ TO (1/8) (See page 5-33)
AGCD PB Y RF
PB RF
Q103 2SB2216 BUFFER
R112 22k
R111 470
C118 120p
C117 47p CH
C116 18p CH
Q102 UN9213 SWITCH
R113 22k
R114 1k
R115 1k
L103 4.7µ
C119 22p CH
IC101
Y RF AMP
C110 0.1 B:2125
C109 0.01 F
C111 0.01 F
C106 0.01 F
R104 390
R102 1k
C102 18p CH
L101 27µ 5%
C104 18p CH
R106 560
C114 0.01 F
C115 0.01 F
R165 10k
R166 10k
R110 220
C101 0.01 F
R103 1k
L102 18µH 5%
C103 15p CH
R105 560
C105 15p CH
R107 390
C112 0.01 F
C113 0.01 F
R109 220
SOFT LIM BLOCK
C107 22p CH
C108 5p CH
IC101 CXA1509
Q112 2SC4627 PB RF EQ
Q111 2SB2216 BUFFER
BUFFER
R143 10k
Q110 2SB2216
C153 0.01 F
R144 22k
L113 33µH :2520
C154 270p CH
R145 1.5k
R146 220
L114 330µH :3225
C155 36p CH
R147 560
L115 470µH :3225
C156 2200p B
R148 0
L116 180µH :3225
R151 470
L117 39µH :2520
C157 270p CH
R150 820
R152 470
C158 10p CH
C159 27p CH
R154 1000
R155 1k
R167 0
SWITCH
PB RF EQ BLOCK
44
16

VS-113 BOARD



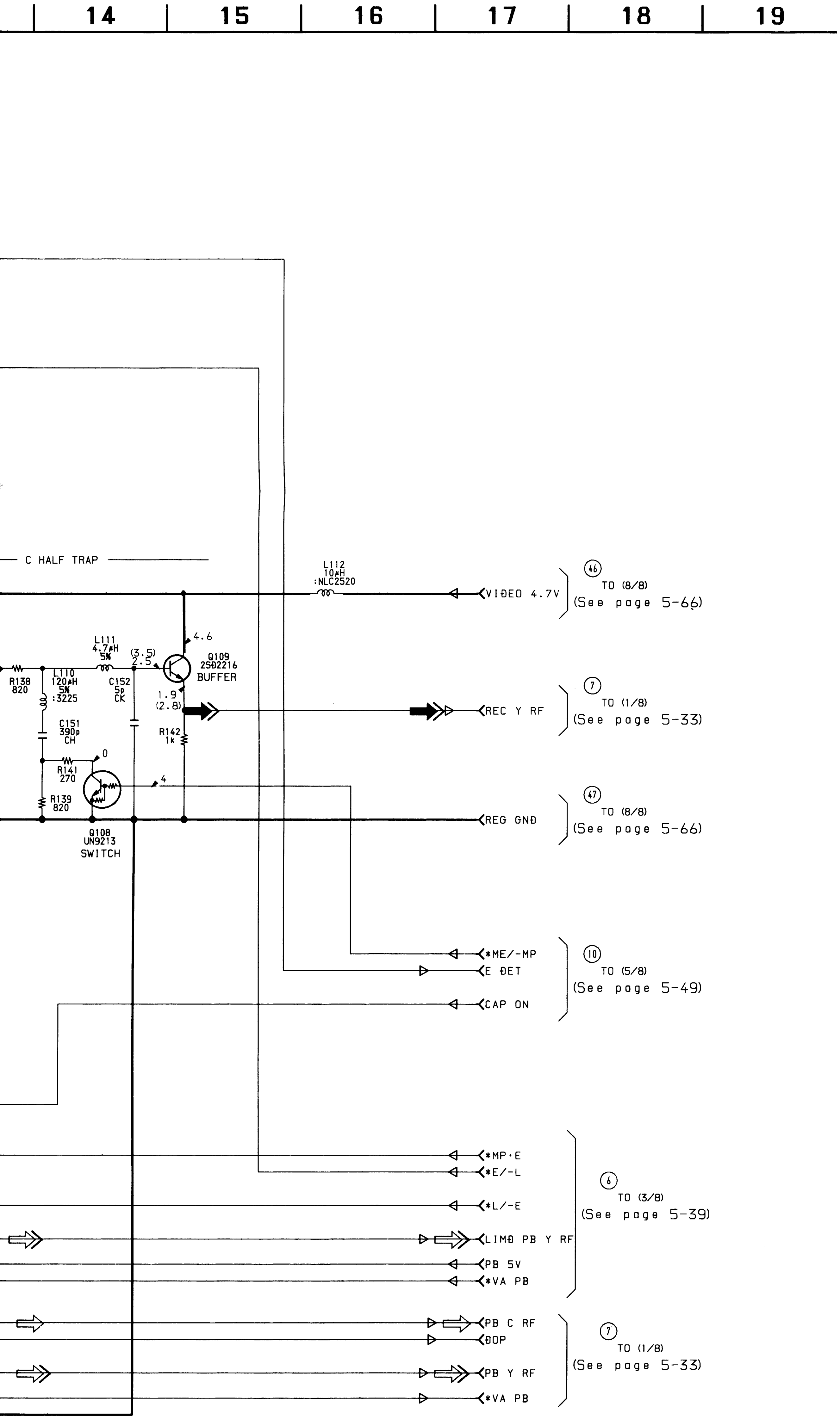





6
7
8
9
10
11
12
13
14
15
16
Q103 2SD2216 BUFFER
R112 22k
R114 1k
R115 1k
C118 120p
C117 47p CH
R116 820
C120 0.01 F
L104 47μH
C121 180p CH
R119 4.7k
Q104 UN9213 SWITCH
R113 22k
R117 10k
Q102 UN9213 SWITCH
L103 4.7μ
C119 22p CH
L105 18μH 5%
L106 3.3μH 5%
R123 2700
C125 0.01 F
C127 0.01 F
C126 18p CH
L107 56μH
C122 0.1 B:2125
C123 62p CH
C124 68p CH
IC101
Y RF AMP
C140 18p
R140 0
42
43
C110 0.1 B:2125
C109 0.01 F
C111 0.01 F
D102 MA111
R135 22k
C HALF TRAP
L112 10μH :NLC2520
C114 0.01 F
C115 0.01 F
R106 560
C141 0.01 F
C145 0.01 F
R136 33k
C150 10 6.3V :TA-A
L111 4.7μH 5%
Q109 2SD2216 BUFFER
R165 10k
R166 10k
R110 220
C142 0.01 F
R138 820
L110 120μH 5% :3225
C152 5p CK
R142 1k
C112 0.01 F
R107 390
R109 220
C113 0.01 F
C151 390p CH
R141 270
R139 820
Q108 UN9213 SWITCH
R130 1000
C146 0.01 F
C143 18p CH
R133 1k
C147 15p CH
L108 18μH
L109 27μH
C107 22p CH
C108 5p CH
IC101 CXA1509AR
C139 0.01 F
R131 1000
C144 7p CH
R134 1k
C148 8p CH
C130 0.01 F
R124 330
R125 1.5k
C132 0.01 F
R128 22k
R129 15k
C131 62p CH
C133 8p CH
R126 22k
R127 8.2k
C137 0.1 B 2125
C134 0.01 F
Q112 2SC4627 PB RF EQ
Q114 2SC4627 PEAKING
Q118 2SD2216 BUFFER
L120 0 :NLC2125
L116 180μH :3225
R151 470
L117 39μH :2520
C159 27p CH
R155 1k
R156 330
R158 390
L119 12μH :2520
L118 6.8μH 5%
R160 560
C160 68p CH
C161 5p CH
C162 33p CH
C164 0.1 (F) 3216
C157 270p CH
R150 820
R152 470
C158 10p CH
R154 1000
R167 0
R157 470
R162 3900
R163 100
R164 560
CL101
Q113 2SB1462 PB RF EQ
R159 390
Q115 UN9213
Q117 UN9213 SWITCH
SWITCH
PB RF EQ BLOCK

·SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHRO
REC		➡	
PB	⇨	⇨	⇨

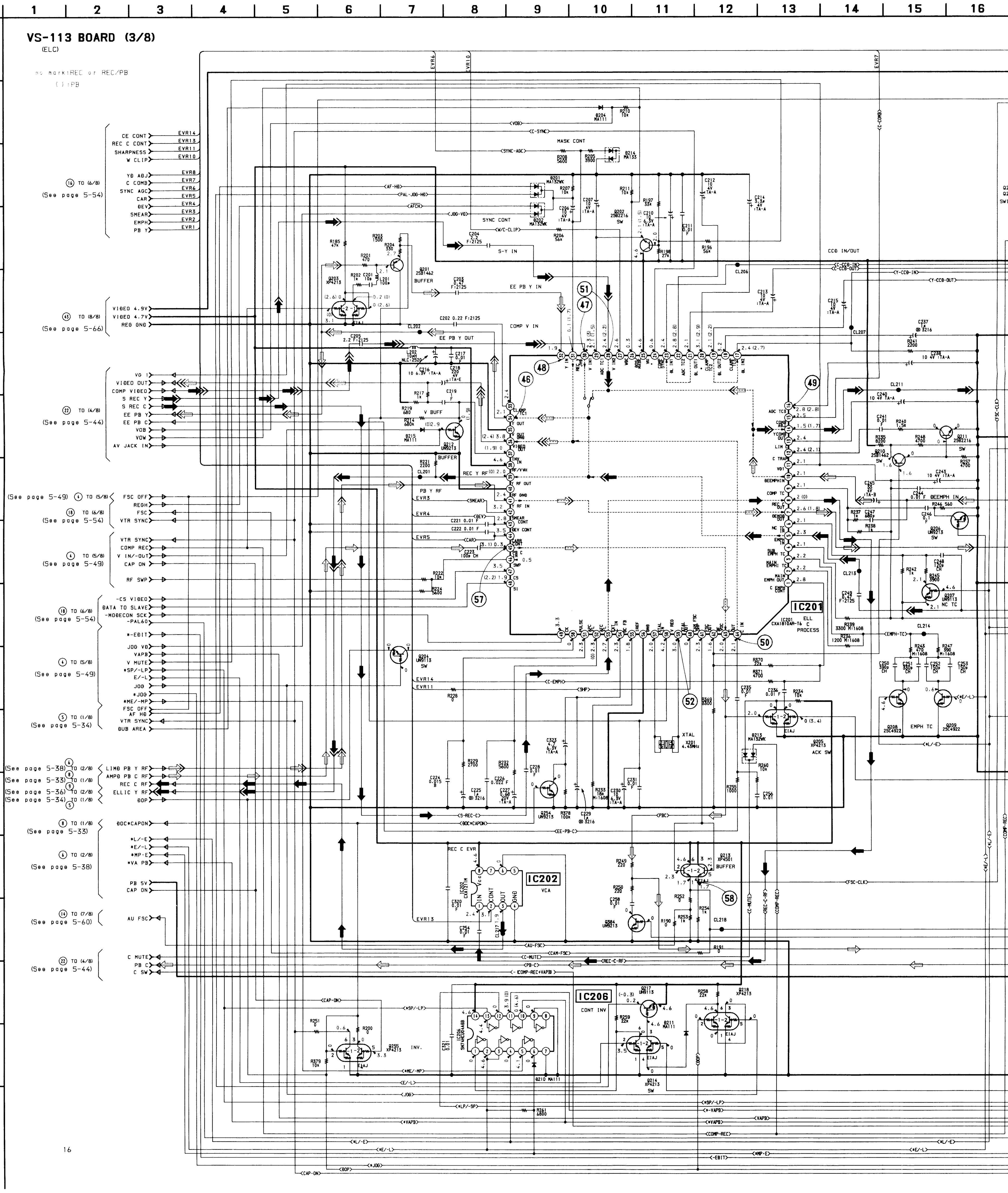

14
15
16
17
18
19
C HALF TRAP
L112
10µH
:NLC2520
VIDEO 4.7V
(46)
TO (8/8)
(See page 5-66)
L111
4.7µH
5%
(3.5)
2.5
4.6
Q109
2SD2216
BUFFER
R138
820
L110
120µH
5%
:3225
C152
5p
CK
1.9
(2.8)
REC Y RF
⑦
TO (1/8)
(See page 5-33)
C151
390p
CH
R142
1k
0
R141
270
4
R139
820
Q108
UN9213
SWITCH
REG GND
(47)
TO (8/8)
(See page 5-66)
*ME/-MP
E DET
CAP ON
⑩
TO (5/8)
(See page 5-49)
*MP·E
*E/-L
*L/-E
LIMD PB Y RF
PB 5V
*VA PB
⑥
TO (3/8)
(See page 5-39)
PB C RF
DOP
PB Y RF
*VA PB
⑦
TO (1/8)
(See page 5-33)

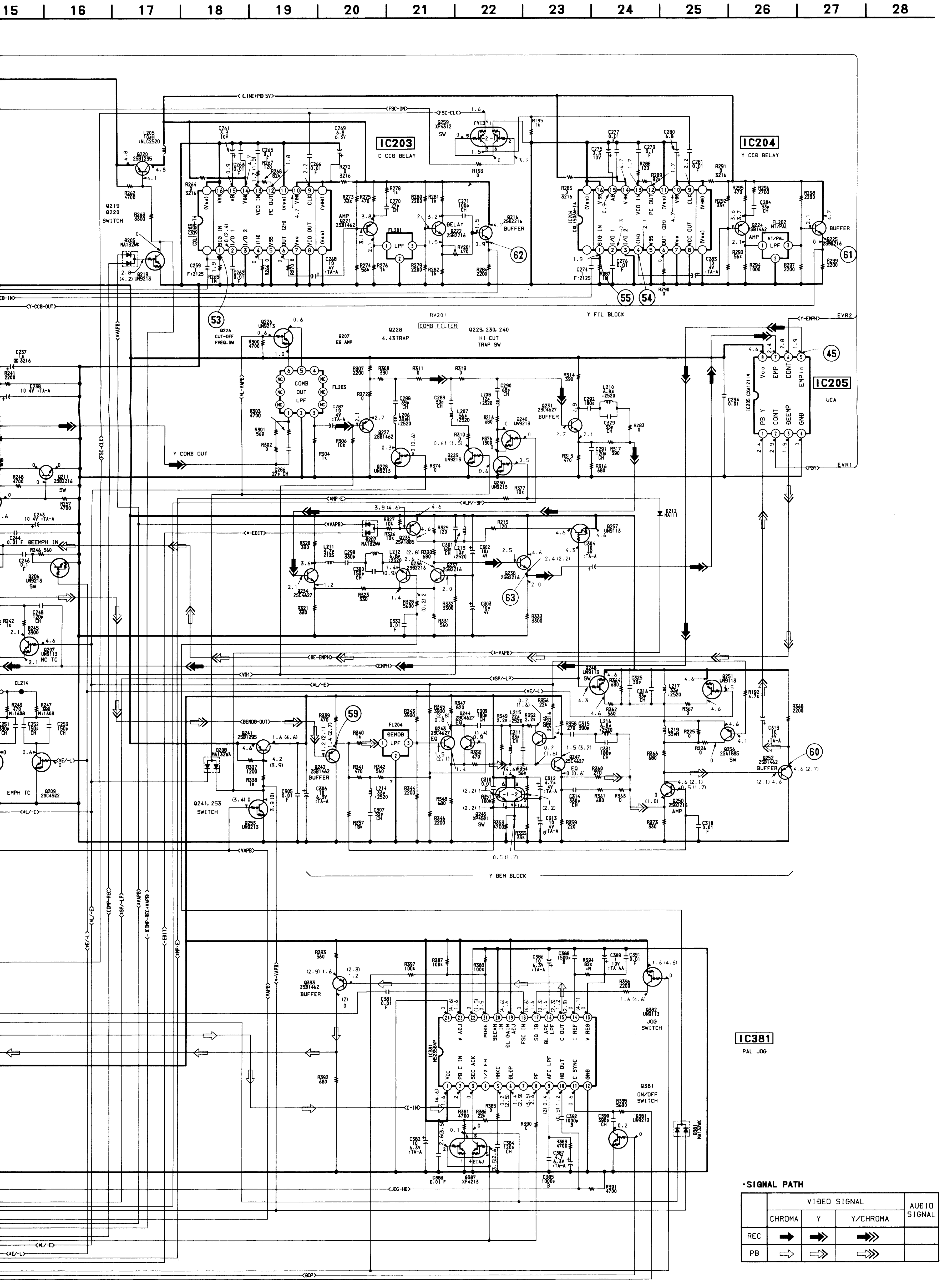
·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡»		
PB	⇨	⇨»	⇨»»	

VS-113 (VIDEO) SCHEMATIC DIAGRAM • Refer to page 5-24 for printed wiring board.

— Ref. No. : VS-113 Board; 4,000 Series —


VS-113 BOARD (3/8)
(ELC)
no mark:REC or REC/PB
( ):PB
CE CONT
REC C CONT
SHARPNESS
W CLIP
YB ADJ
C COMB
SYNC AGC
CAR
BEV
SMEAR
EMPH
PB Y
⑯ TO (6/8)
(See page 5-54)
VIDEO 4.9V
VIDEO 4.7V
REG GND
㊺ TO (8/8)
(See page 5-66)
VG I
VIDEO OUT
COMP VIDEO
S REC Y
S REC C
EE PB Y
EE PB C
VOB
VOW
AV JACK IN
㉒ TO (4/8)
(See page 5-44)
FSC OFF
REGH
FSC
VTR SYNC
④ TO (5/8)
(See page 5-49)
⑱ TO (6/8)
(See page 5-54)
VTR SYNC
COMP REC
V IN/-OUT
CAP ON
RF SWP
-CS VIDEO
DATA TO SLAVE
-MOBECON SCK
-PAL60
*-EBIT
JOG VB
VAPB
V MUTE
*SP/-LP
E/-L
JOG
*JOG
*ME/-MP
FSC OFF
AF HB
VTR SYNC
SUB AREA
⑤ TO (1/8)
(See page 5-34)
LIMB PB Y RF
AMPB PB C RF
REC C RF
ELLIC Y RF
BOP
BOC*CAPON
*L/-E
*E/-L
*MP-E
*VA PB
PB 5V
CAP ON
AU FSC
C MUTE
PB C
C SW
IC201
CXA1810AR-T6
ELL C PROCESS
IC202
VCA
IC206
CONT INV
CCB IN/OUT
SYNC CONT
MASK CONT
BUFFER
V BUFF
ACK SW
EMPH TC
NC TC
XTAL X201 4.43MHz
(47)
(48)
(46)
(49)
(50)
(51)
(52)
(57)
(58)
16


15
16
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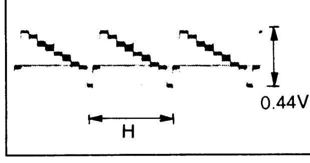
24
25
26
27
28
IC203
C CCD DELAY
IC204
Y CCD DELAY
IC205
UCA
IC381
PAL JOG
COMB FILTER
Y FIL BLOCK
Y DEM BLOCK
Y COMB OUT

·SIGNAL PATH

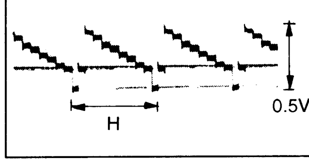
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡≫	
PB	⇨	⇨⇨	⇨≫	

VS-113 BOARD

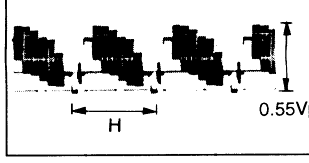
(45) IC205 (5) REC



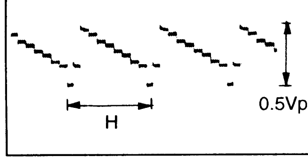
(45) IC205 (5) PB



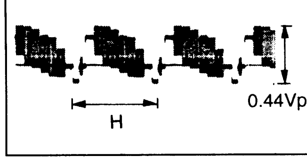
(46) IC201 (34) REC



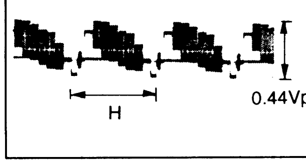
(46) IC201 (34) PB



(47) IC201 (30) REC

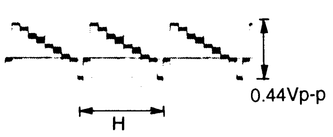


(48) IC201 (32) REC

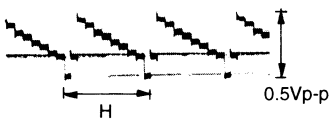


VS-113 BOARD

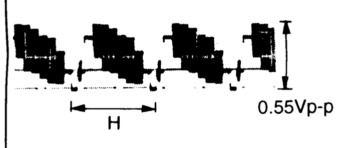
㊺ IC205 ⑤ REC



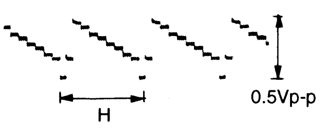
㊺ IC205 ⑤ PB



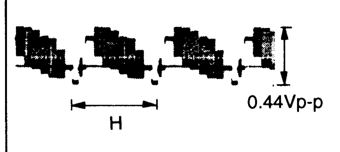
㊻ IC201 ㉞ REC



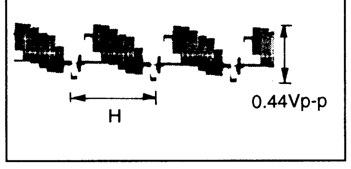
㊻ IC201 ㉞ PB



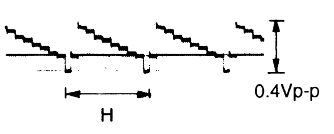
㊼ IC201 ㉚ REC



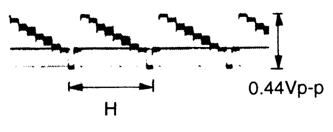
㊽ IC201 ㉜ REC



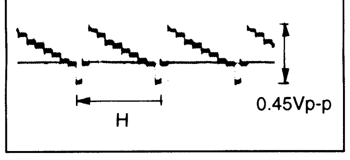
㊽ IC201 ㉜ PB



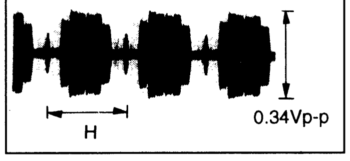
㊾ IC201 ⑭ REC



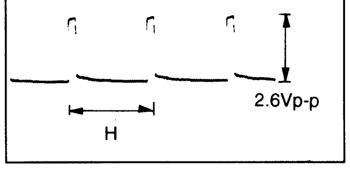
㊾ IC201 ⑭ PB



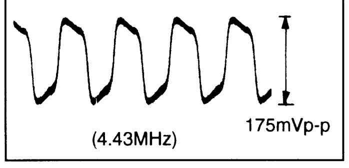
㊿ IC381 ② PB



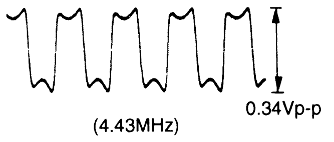
(51) IC381 ⑩ PB



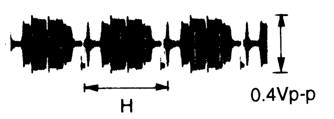
(52) IC201 (59) REC



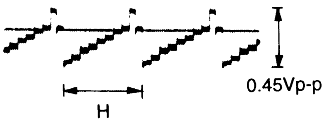
(52) IC201 (59) PB



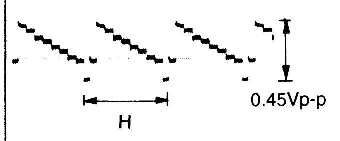
(53) IC203 ① PB



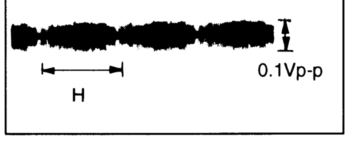
(54) IC204 ④ PB



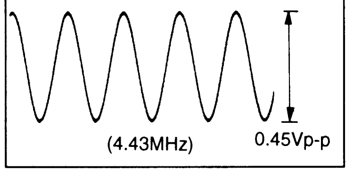
(55) IC204 ① PB



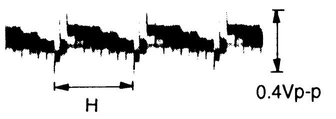
(57) IC201 ㊺ PB



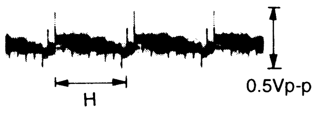
(58) Q213 Ⓔ REC/PB



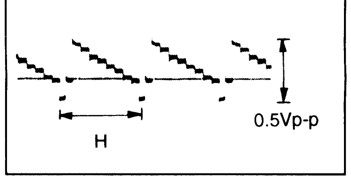
(59) Q242 Ⓔ PB



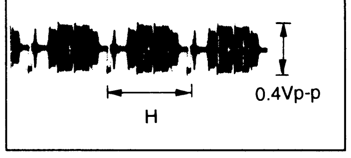
(60) Q252 Ⓔ PB



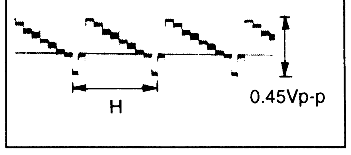
(61) Q225 Ⓔ PB



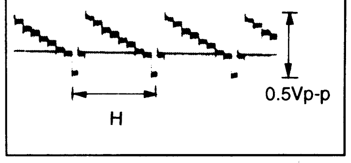
(62) Q216 Ⓔ PB



(63) Q238 Ⓔ REC

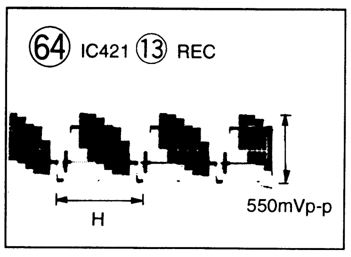


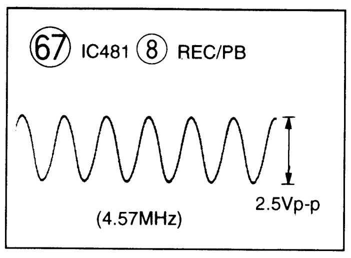
(63) Q238 Ⓔ PB

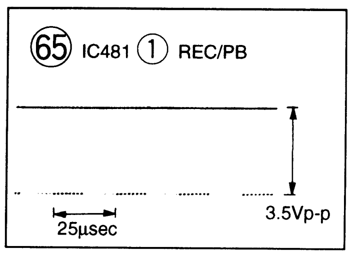


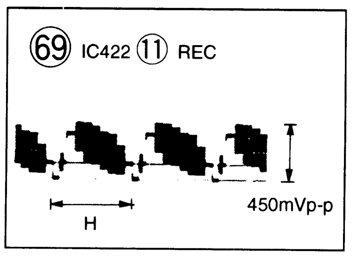
	AUDIO SIGNAL
OMA	
>	
>	

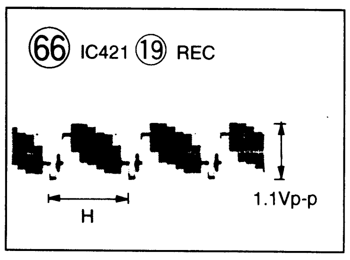
VS-113 BOARD

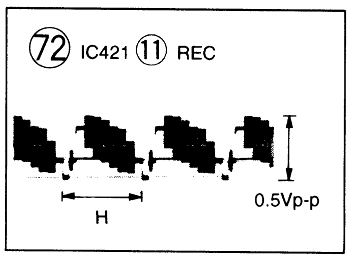

(64) IC421 ⑬ REC


(67) IC481 ⑧ REC/PB


(65) IC481 ① REC/PB

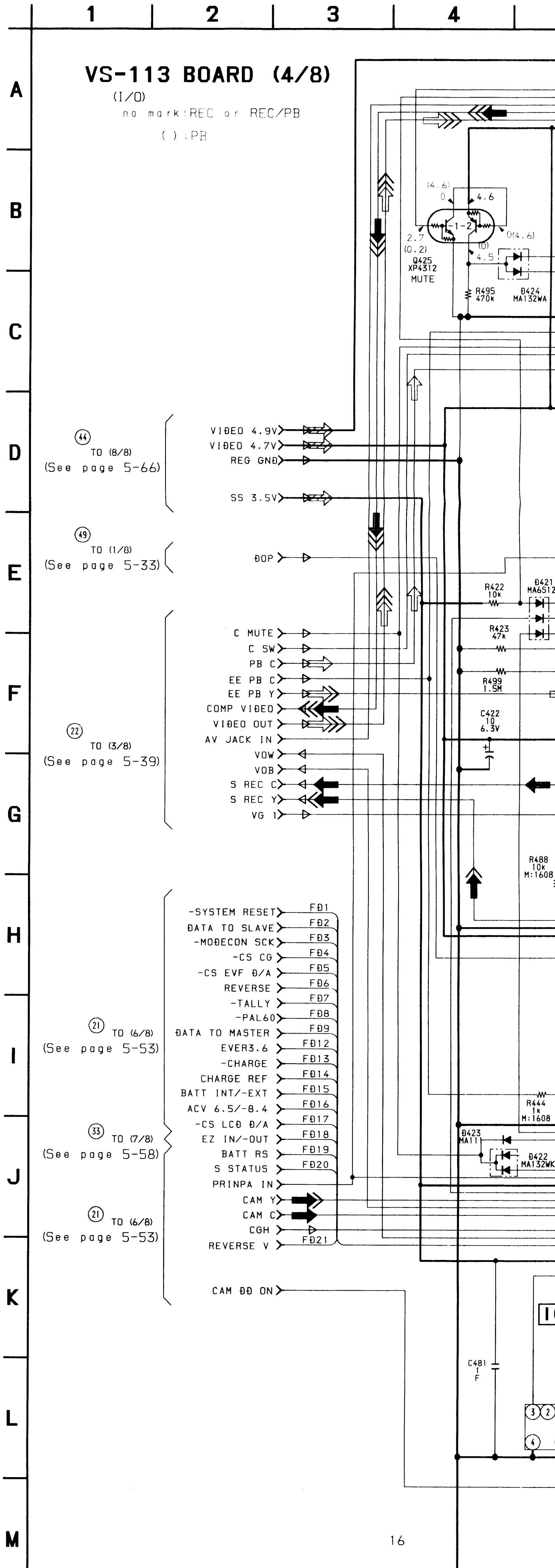

(69) IC422 ⑪ REC


(66) IC421 ⑲ REC


(72) IC421 ⑪ REC

VS-113 (I/O) SCHEMATIC DIAGRAM • Refer to page 5-24 for printed wiring boar

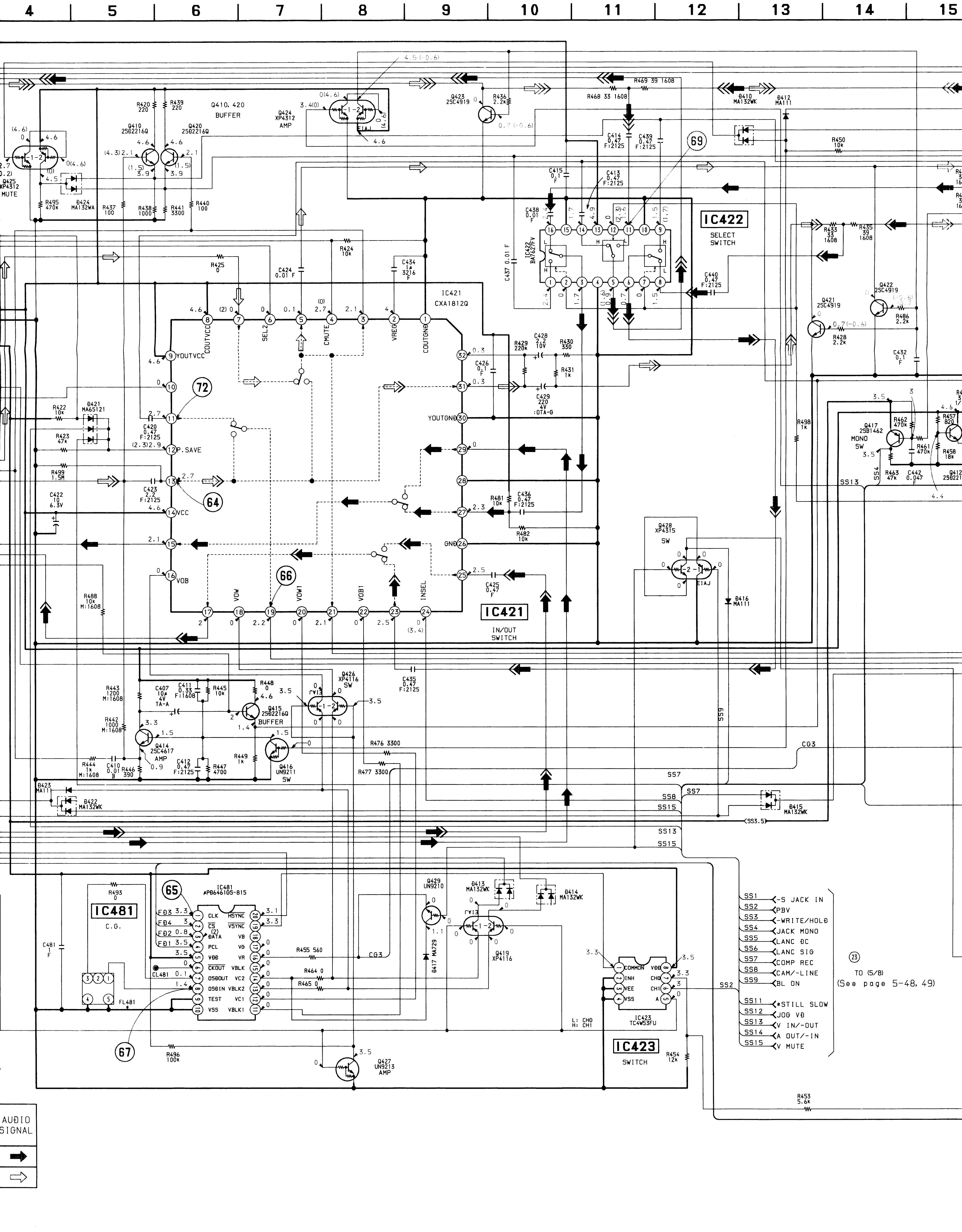
— Ref. No. : VS-113 Board; 4,000 Series —

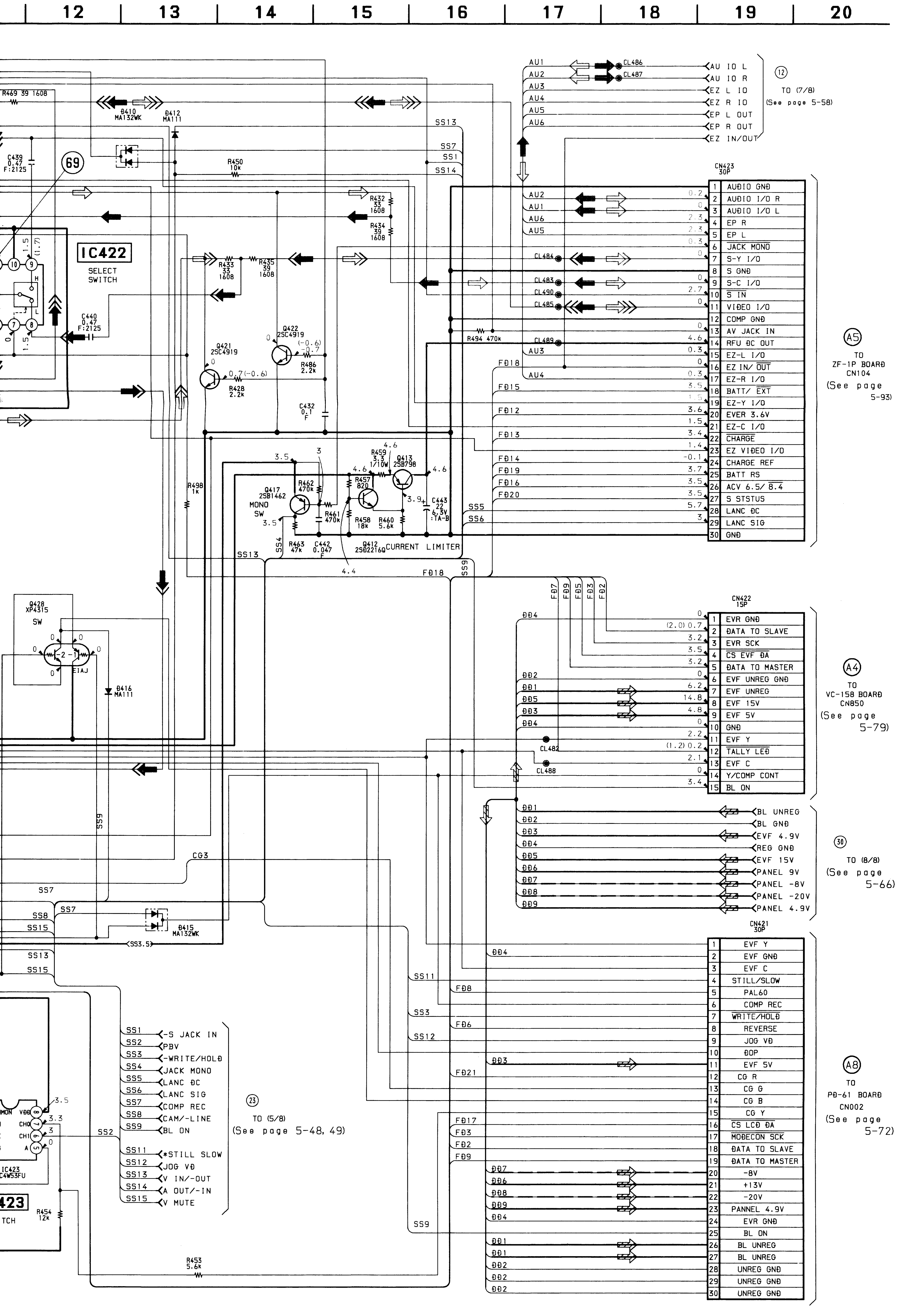

1
2
3
4
A
B
C
D
E
F
G
H
I
J
K
L
M
N
VS-113 BOARD (4/8)
(I/O)
no mark:REC or REC/PB
( ):PB
(4.6)
0
4.6
2.7
(0.2)
(0)
0(4.6)
4.5
Q425
XP4312
MUTE
R495
470k
Q424
MA132WA
(44) TO (8/8)
(See page 5-66)
VIDEO 4.9V
VIDEO 4.7V
REG GND
SS 3.5V
(49) TO (1/8)
(See page 5-33)
DOP
R422
10k
Q421
MA6512
R423
47k
R499
1.5M
C422
10
6.3V
(22) TO (3/8)
(See page 5-39)
C MUTE
C SW
PB C
EE PB C
EE PB Y
COMP VIDEO
VIDEO OUT
AV JACK IN
VOW
VOB
S REC C
S REC Y
VG 1
R488
10k
M:1608
(21) TO (6/8)
(See page 5-53)
-SYSTEM RESET
DATA TO SLAVE
-MODECON SCK
-CS CG
-CS EVF D/A
REVERSE
-TALLY
-PAL60
DATA TO MASTER
EVER3.6
-CHARGE
CHARGE REF
BATT INT/-EXT
ACV 6.5/-8.4
FD1
FD2
FD3
FD4
FD5
FD6
FD7
FD8
FD9
FD12
FD13
FD14
FD15
FD16
FD17
FD18
FD19
FD20
FD21
(33) TO (7/8)
(See page 5-58)
-CS LCD D/A
EZ IN/-OUT
BATT RS
S STATUS
PRINPA IN
(21) TO (6/8)
(See page 5-53)
CAM Y
CAM C
CGH
REVERSE V
R444
1k
M:1608
Q423
MA111
Q422
MA132WK
CAM DD ON
C481
1
F
16

·SIGNAL PATH

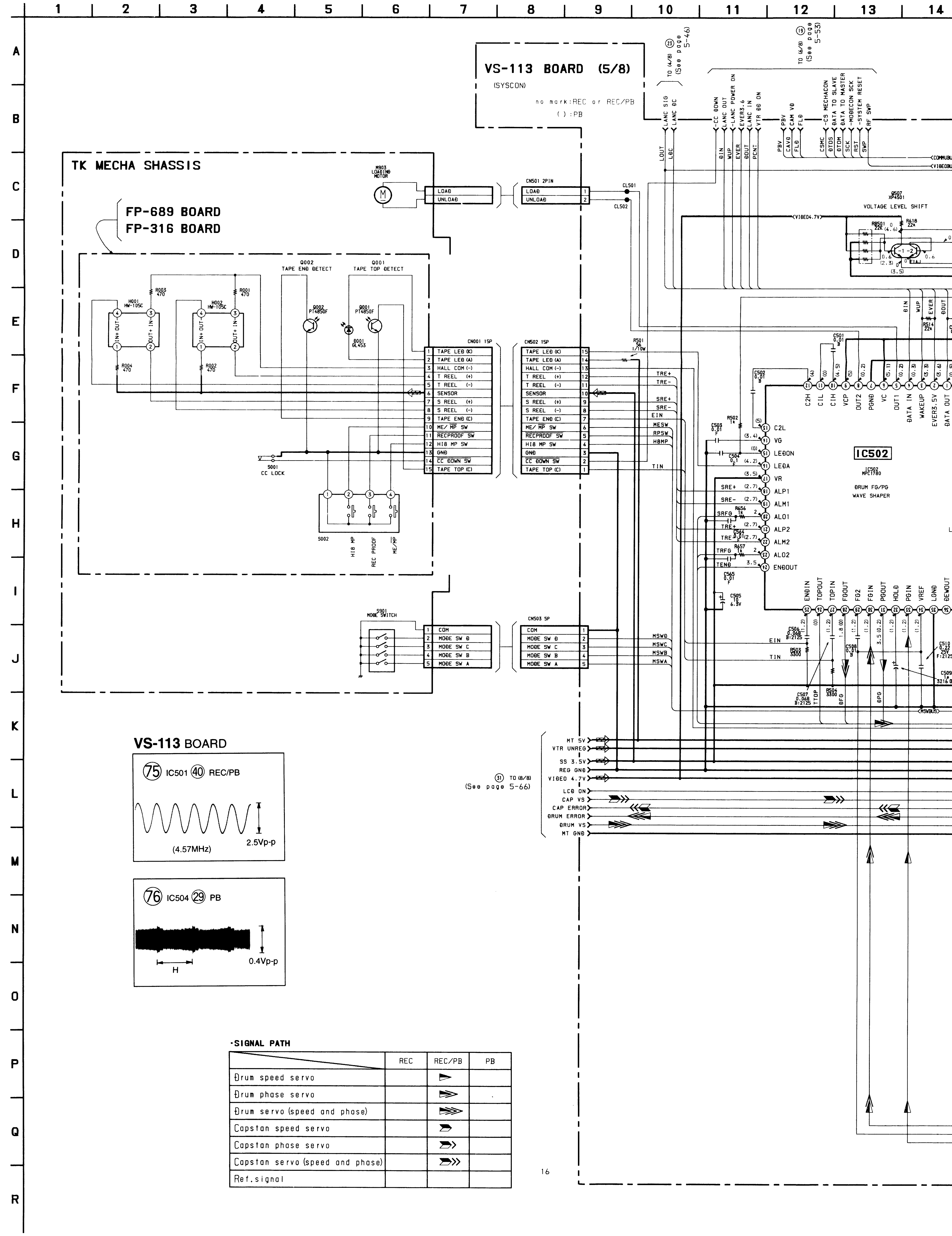
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

for printed wiring board.


4
5
6
7
8
9
10
11
12
13
14
15
Q410, 420 BUFFER
Q410 2SD2216Q
Q420 2SD2216Q
Q424 XP4312 AMP
Q423 2SC4919
Q425 XP4312 MUTE
D424 MA132WA
D410 MA132WK
D412 MA111
R469 39 1608
R468 33 1608
R450 10k
R433 33 1608
R435 39 1608
IC422 BA7627FV
IC422 SELECT SWITCH
IC421 CXA1812Q
IC421 IN/OUT SWITCH
COUTVCC
SEL2
CMUTE
VREG
COUTGND
YOUTVCC
YOUTGND
P.SAVE
VCC
GND
VOB
VOW
VOW1
VOB1
INSEL
D421 MA6S121
Q421 2SC4919
Q422 2SC4919
Q417 2SB1462 MONO SW
Q412 2SD221
Q428 XP4315 SW
D416 MA111
Q426 XP4116 SW
Q415 2SD2216Q BUFFER
Q414 2SC4617 AMP
Q416 UN9211 SW
D423 MA111
D422 MA132WK
D415 MA132WK
IC481 #P0646105-815
IC481 C.G.
FL481
CL481
CLK
CS
DATA
PCL
VDD
CKOUT
OSDOUT
OSDIN
TEST
VSS
HSYNC
VSYNC
VB
VG
VR
VBLK
VC2
VBLK2
VC1
VBLK1
FD3
FD4
FD2
FD1
Q429 UN9210
D413 MA132WK
D414 MA132WK
D417 MA729
Q419 XP4116
Q427 UN5213 AMP
IC423 TC4W53FU
IC423 SWITCH
COMMON
INH
VEE
VSS
CH0
CH1
L: CH0
H: CH1
CG3
SS1 -S JACK IN
SS2 PBV
SS3 -WRITE/HOLD
SS4 JACK MONO
SS5 LANC DC
SS6 LANC SIG
SS7 COMP REC
SS8 CAM/-LINE
SS9 BL ON
SS11 *STILL SLOW
SS12 JOG VD
SS13 V IN/-OUT
SS14 A OUT/-IN
SS15 V MUTE
(SS3.5)
㉓
TO (5/8)
(See page 5-48, 49)
R453 5.6k
R454 12k
(64)
(65)
(66)
(67)
(69)
(72)
AUDIO SIGNAL


12
13
14
15
16
17
18
19
20
AU IO L
AU IO R
EZ L IO
EZ R IO
EP L OUT
EP R OUT
EZ IN/OUT
⑫
TO (7/8)
(See page 5-58)
CL486
CL487
R469 39 1608
D410 MA132WK
D412 MA111
C439 0.47 F:2125
(69)
R450 10k
SS13
SS7
SS1
SS14
IC422
SELECT SWITCH
C440 0.47 F:2125
R432 33 1608
R434 39 1608
R433 33 1608
R435 39 1608
Q422 2SC4919
Q421 2SC4919
R486 2.2k
R428 2.2k
C432 0.1 F
R498 1k
R459 3.3 1/10W
Q413 2SB798
Q417 2SB1462
MONO SW
R462 470k
R457 820
R461 470k
R458 18k
R460 5.6k
C443 22 6.3V :TA-B
R463 47k
C442 0.047 F
Q412 2SD2216Q
CURRENT LIMITER
SS5
SS6
SS4
SS13
SS9
FD18
R494 470k
CN423 30P
1 AUDIO GND
2 AUDIO I/O R
3 AUDIO I/O L
4 EP R
5 EP L
6 JACK MONO
7 S-Y I/O
8 S GND
9 S-C I/O
10 S IN
11 VIDEO I/O
12 COMP GND
13 AV JACK IN
14 RFU DC OUT
15 EZ-L I/O
16 EZ IN/ OUT
17 EZ-R I/O
18 BATT/ EXT
19 EZ-Y I/O
20 EVER 3.6V
21 EZ-C I/O
22 CHARGE
23 EZ VIDEO I/O
24 CHARGE REF
25 BATT RS
26 ACV 6.5/ 8.4
27 S STSTUS
28 LANC DC
29 LANC SIG
30 GND
A5
TO ZF-1P BOARD CN104
(See page 5-93)
CL484
CL483
CL490
CL485
CL489
FD15
FD12
FD13
FD14
FD19
FD16
FD20
Q428 XP4315
SW
EIAJ
D416 MA111
FD7
FD9
FD5
FD3
FD2
CN422 15P
1 EVR GND
2 DATA TO SLAVE
3 EVR SCK
4 CS EVF DA
5 DATA TO MASTER
6 EVF UNREG GND
7 EVF UNREG
8 EVF 15V
9 EVF 5V
10 GND
11 EVF Y
12 TALLY LED
13 EVF C
14 Y/COMP CONT
15 BL ON
A4
TO VC-158 BOARD CN850
(See page 5-79)
CL482
CL488
DD1
DD2
DD3
DD4
DD5
DD6
DD7
DD8
DD9
BL UNREG
BL GND
EVF 4.9V
REG GND
EVF 15V
PANEL 9V
PANEL -8V
PANEL -20V
PANEL 4.9V
㉚
TO (8/8)
(See page 5-66)
CG3
SS7
SS8
SS15
D415 MA132WK
SS3.5
SS13
SS15
SS11
SS3
SS12
FD8
FD6
FD21
FD17
FD3
FD2
FD9
SS2
SS9
SS1 -S JACK IN
SS2 PBV
SS3 -WRITE/HOLD
SS4 JACK MONO
SS5 LANC DC
SS6 LANC SIG
SS7 COMP REC
SS8 CAM/-LINE
SS9 BL ON
SS11 *STILL SLOW
SS12 JOG VD
SS13 V IN/-OUT
SS14 A OUT/-IN
SS15 V MUTE
㉓
TO (5/8)
(See page 5-48, 49)
IC423
C4W53FU
423
TCH
R454 12k
R453 5.6k
CN421 30P
1 EVF Y
2 EVF GND
3 EVF C
4 STILL/SLOW
5 PAL60
6 COMP REC
7 WRITE/HOLD
8 REVERSE
9 JOG VD
10 DOP
11 EVF 5V
12 CG R
13 CG G
14 CG B
15 CG Y
16 CS LCD DA
17 MODECON SCK
18 DATA TO SLAVE
19 DATA TO MASTER
20 -8V
21 +13V
22 -20V
23 PANNEL 4.9V
24 EVR GND
25 BL ON
26 BL UNREG
27 BL UNREG
28 UNREG GND
29 UNREG GND
30 UNREG GND
A8
TO PD-61 BOARD CN002
(See page 5-72)

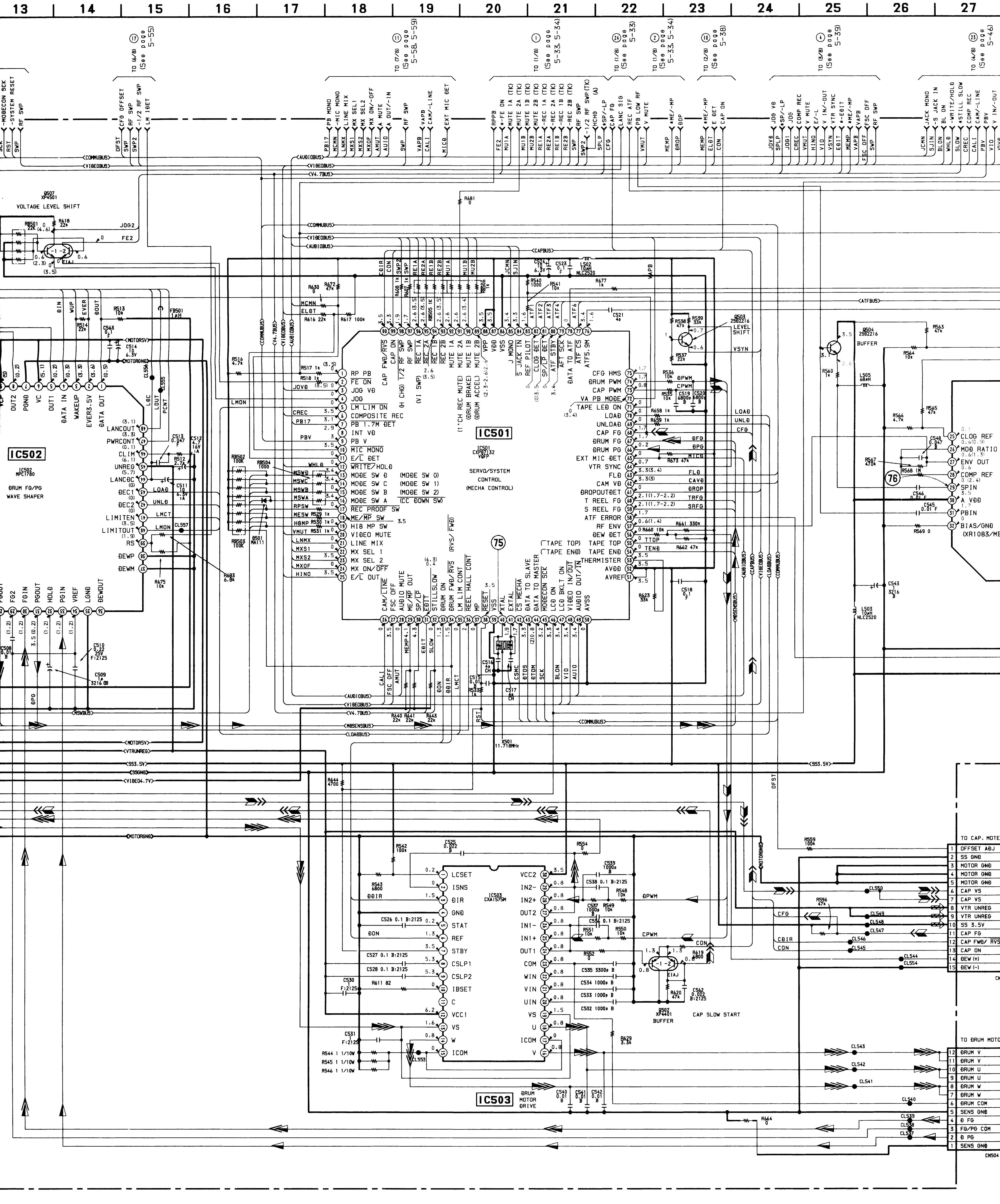
— Ref. No. : VS-113 Board; 4,000 Series, FP-689, FP-316 Board; 6,000 Series —

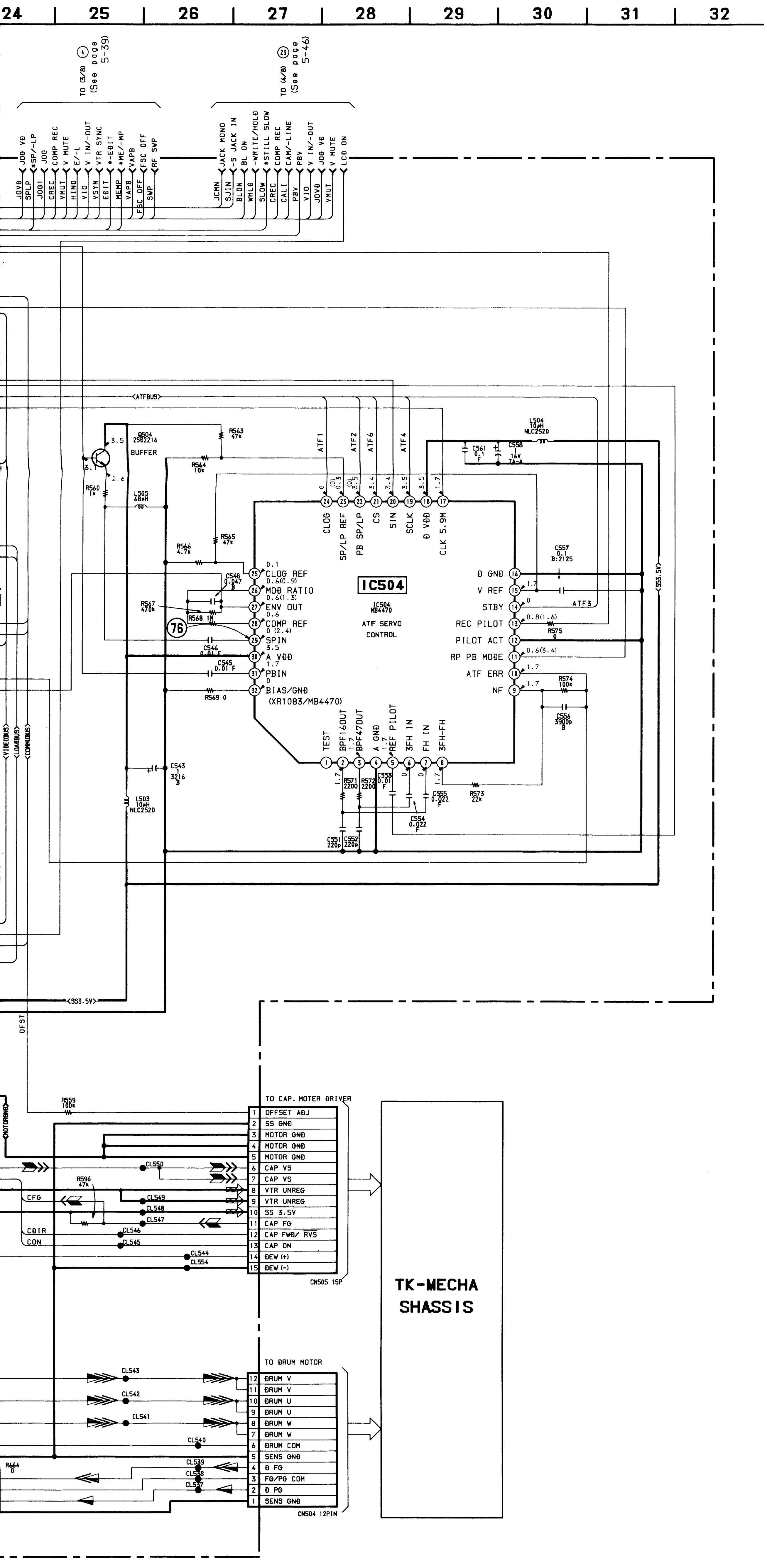

VS-113 BOARD (5/8)
(SYSCON)
no mark:REC or REC/PB
( ):PB
TK MECHA SHASSIS
FP-689 BOARD
FP-316 BOARD
M903 LOADING MOTOR
CN501 2PIN
LOAD
UNLOAD
Q002 TAPE END DETECT
Q001 TAPE TOP DETECT
H001 HW-105C
H002 HW-105C
D001 GL453
S001 CC LOCK
S002
HI8 MP
REC PROOF
ME/MP
CN001 15P
CN502 15P
TAPE LED (K)
TAPE LED (A)
HALL COM (-)
T REEL (+)
T REEL (-)
SENSOR
S REEL (+)
S REEL (-)
TAPE END (C)
ME/MP SW
RECPROOF SW
HI8 MP SW
GND
CC DOWN SW
TAPE TOP (C)
S901 MODE SWITCH
CN503 5P
COM
MODE SW D
MODE SW C
MODE SW B
MODE SW A
TO (4/8) (See page 5-46)
TO (6/8) (See page 5-53)
LANC SIG
LANC DC
CC DOWN
LANC OUT
LANC POWER ON
EVER3.6
LANC IN
VTR DD ON
PBV
CAM VD
FLD
CS MECHACON
DATA TO SLAVE
DATA TO MASTER
MODECON SCK
SYSTEM RESET
RF SWP
Q507 XP4501 VOLTAGE LEVEL SHIFT
IC502
IC502 MPC1780
DRUM FG/PG WAVE SHAPER
C2L
VG
LEDON
LEDA
VR
ALP1
ALM1
ALO1
ALP2
ALM2
ALO2
ENDOUT
ENDIN
TOPOUT
TOPIN
FGOUT
FG2
FGIN
PGOUT
HOLD
PGIN
VREF
LGND
DEWOUT
C2H
C1L
C1H
VCP
OUT2
PGND
VC
OUT1
DATA IN
WAKEUP
EVER3.5V
DATA OUT
TO (8/8) (See page 5-66)
MT 5V
VTR UNREG
SS 3.5V
REG GND
VIDEO 4.7V
LCD ON
CAP VS
CAP ERROR
DRUM ERROR
DRUM VS
MT GND
VS-113 BOARD
(75) IC501 (40) REC/PB
(4.57MHz)
2.5Vp-p
(76) IC504 (29) PB
H
0.4Vp-p
16

·SIGNAL PATH

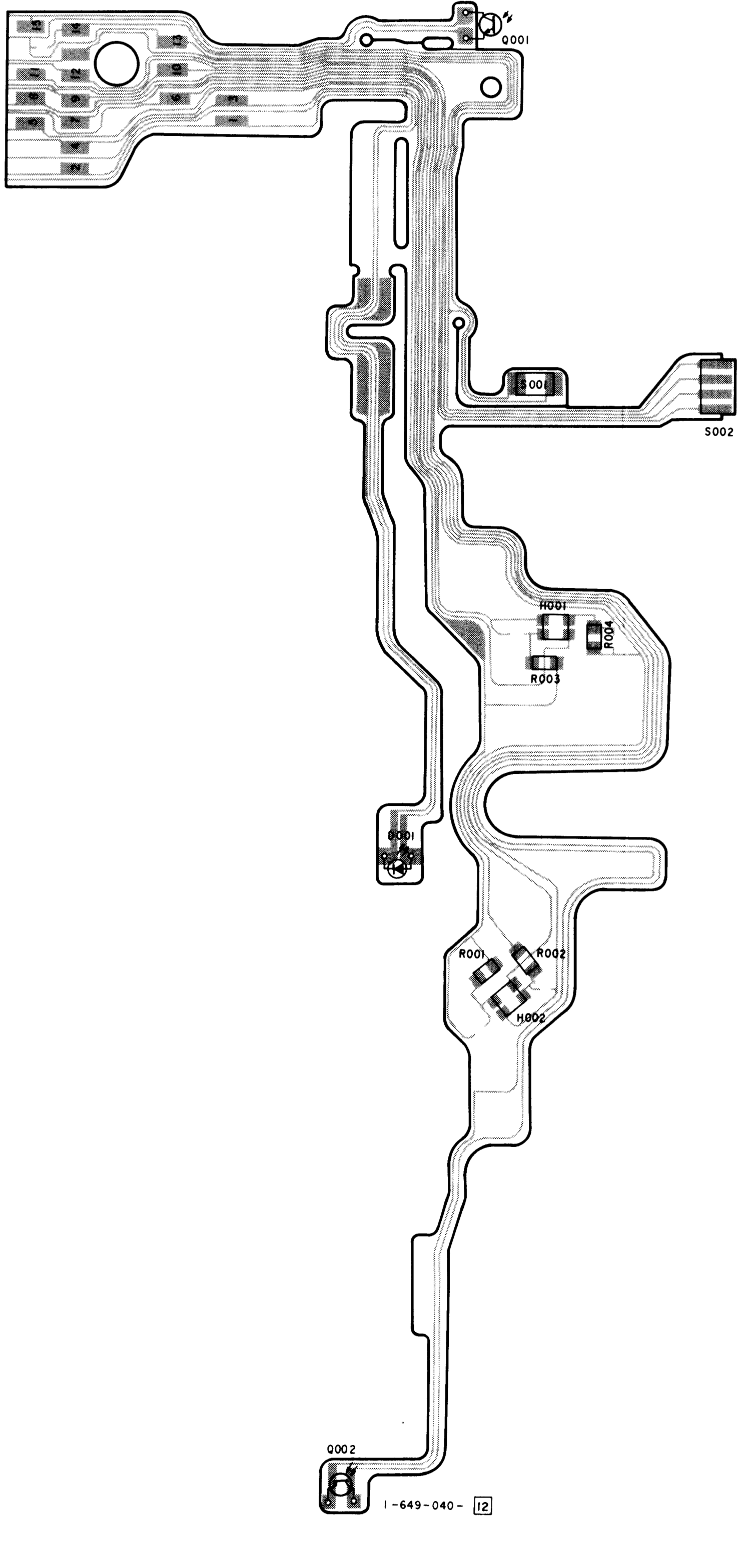
	REC	REC/PB	PB
Drum speed servo		▻	
Drum phase servo		▻▻	
Drum servo (speed and phase)		▻▻▻	
Capstan speed servo		➤	
Capstan phase servo		➤›	
Capstan servo (speed and phase)		➤››	
Ref.signal			

board.


13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
TO (6/8) (See page 5-55)
TO (7/8) (See page 5-58, 5-59)
TO (1/8) (See page 5-33, 5-34)
TO (1/8) (See page 5-33)
TO (1/8) (See page 5-33, 5-34)
TO (2/8) (See page 5-38)
TO (3/8) (See page 5-39)
TO (4/8) (See page 5-46)
Q507 XP4501
VOLTAGE LEVEL SHIFT
IC502
MPC1780
DRUM FG/PG WAVE SHAPER
IC501
CXP87132 V6FP
SERVO/SYSTEM CONTROL (MECHA CONTROL)
Q503 2SD2216 LEVEL SHIFT
Q504 2SD2216 BUFFER
IC503
CXA1575M
DRUM MOTOR DRIVE
Q502 XP4401 BUFFER
CAP SLOW START
X501 11.718MHz
RP PB
FE ON
JOG VD
JOG
LM LIM ON
COMPOSITE REC
PB 1.7M DET
INT VD
PB V
MIC MONO
E/C DET
WRITE/HOLD
MODE SW D (MODE SW 0)
MODE SW C (MODE SW 1)
MODE SW B (MODE SW 2)
MODE SW A (CC DOWN SW)
REC PROOF SW
ME/MP SW
HI8 MP SW
VIDEO MUTE
LINE MIX
MX SEL 1
MX SEL 2
MX ON/OFF
E/C OUT
CFG HMS
DRUM PWM
CAP PWM
VA PB MODE
TAPE LED ON
LOAD
UNLOAD
CAP FG
DRUM FG
DRUM PG
EXT MIC DET
VTR SYNC
FLD
CAM VD
DROPOUTDET
T REEL FG
S REEL FG
ATF ERROR
RF ENV
DEW DET
TAPE TOP
TAPE END
THERMISTER
AVDD
AVREF
CLOG REF
MOD RATIO
ENV OUT
COMP REF
SPIN
A VDD
PBIN
BIAS/GND
LCSET
ISNS
DIR
GND
STAT
REF
STBY
CSLP1
CSLP2
IBSET
C
VCC1
VS
W
ICOM
VCC2
IN2-
IN2+
OUT2
IN1-
IN1+
OUT1
COM
WIN
VIN
UIN
U
V
TO CAP. MOTOR
OFFSET ADJ
SS GND
MOTOR GND
CAP VS
VTR UNREG
SS 3.5V
CAP FG
CAP FWD/RVS
CAP ON
DEW (+)
DEW (-)
TO DRUM MOTOR
DRUM V
DRUM U
DRUM W
DRUM COM
SENS GND
D FG
FG/PG COM
D PG
CN504
LANCOUT
PWRCONT
CLIM
UNREG
LANCDC
DEC1
DEC2
LIMITEN
LIMITOUT
RS
DEWP
DEWM
<COMMUBUS>
<VIDEOBUS>
<AUDIOBUS>
<V4.7BUS>
<CAPBUS>
<ATFBUS>
<MDSENSBUS>
<LOADBUS>
<MOTOR5V>
<VTRUNREG>
<SS3.5V>
<SSGND>
<VIDEO4.7V>
<MOTORGND>
75
76

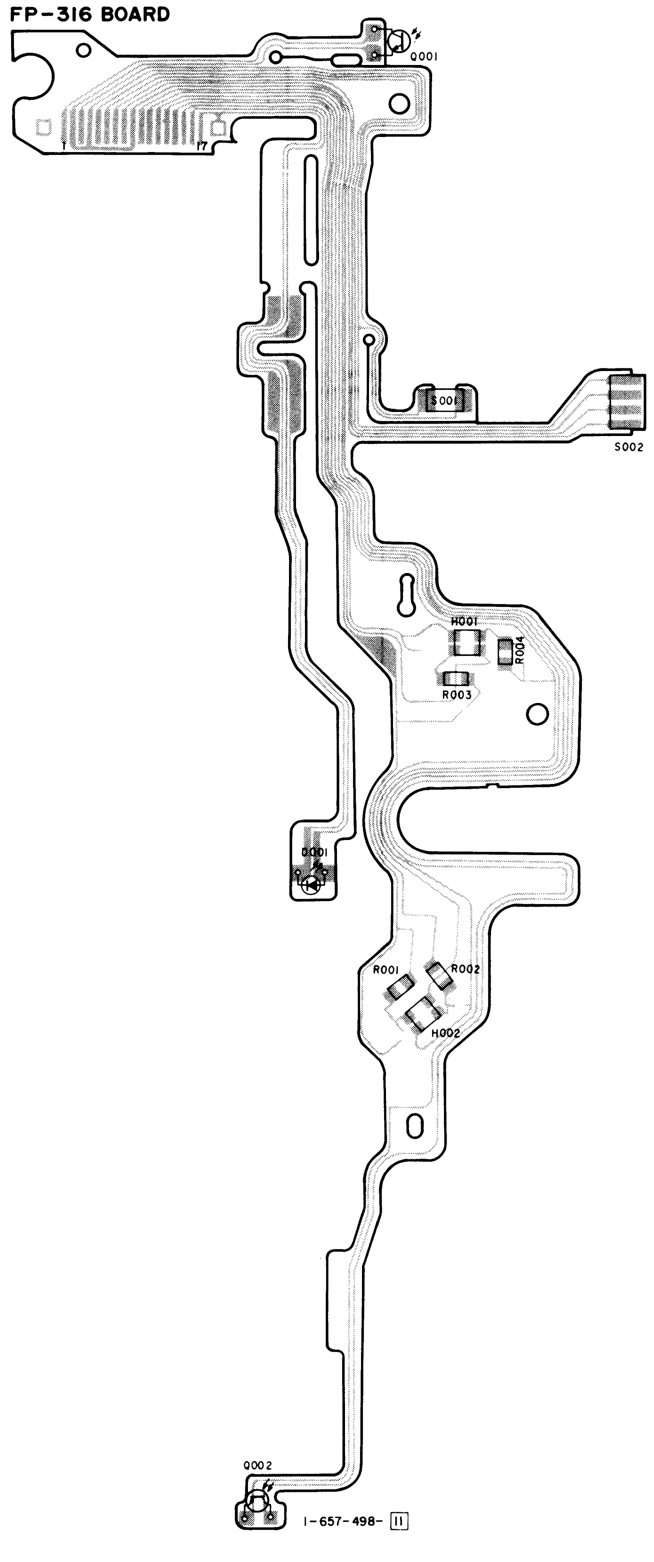

24
25
26
27
28
29
30
31
32
TO (3/8) (See page 5-39)
TO (4/8) (See page 5-46)
JDV0
SPLP
JOG1
CREC
VMUT
HINO
VIO
VSYN
EDIT
MEMP
VAPB
FSC OFF
SWP
JCMN
SJIN
BLON
WHLD
SLOW
CREC
CALI
PBV
VIO
JDV0
VMUT
<ATFBUS>
Q504 2SD2216 BUFFER
IC504 MB4470 ATF SERVO CONTROL
CLOG REF
MOD RATIO
ENV OUT
COMP REF
SPIN
A VDD
PBIN
BIAS/GND (XR1083/MB4470)
TEST
BPF160UT
BPF470UT
A GND
REF PILOT
3FH IN
FH IN
3FH-FH
CLOG
SP/LP REF
PB SP/LP
CS
SIN
SCLK
D VDD
CLK 5.9M
D GND
V REF
STBY
REC PILOT
PILOT ACT
RP PB MODE
ATF ERR
NF
ATF1
ATF2
ATF6
ATF4
ATF3
<SS3.5V>
OFST
TO CAP. MOTER DRIVER
1 OFFSET ADJ
2 SS GND
3 MOTOR GND
4 MOTOR GND
5 MOTOR GND
6 CAP VS
7 CAP VS
8 VTR UNREG
9 VTR UNREG
10 SS 3.5V
11 CAP FG
12 CAP FWD/ RVS
13 CAP ON
14 DEW (+)
15 DEW (-)
CN505 15P
TK-MECHA SHASSIS
TO DRUM MOTOR
12 DRUM V
11 DRUM V
10 DRUM U
9 DRUM U
8 DRUM W
7 DRUM W
6 DRUM COM
5 SENS GND
4 D FG
3 FG/PG COM
2 D PG
1 SENS GND
CN504 12PIN

FP-689 BOARD

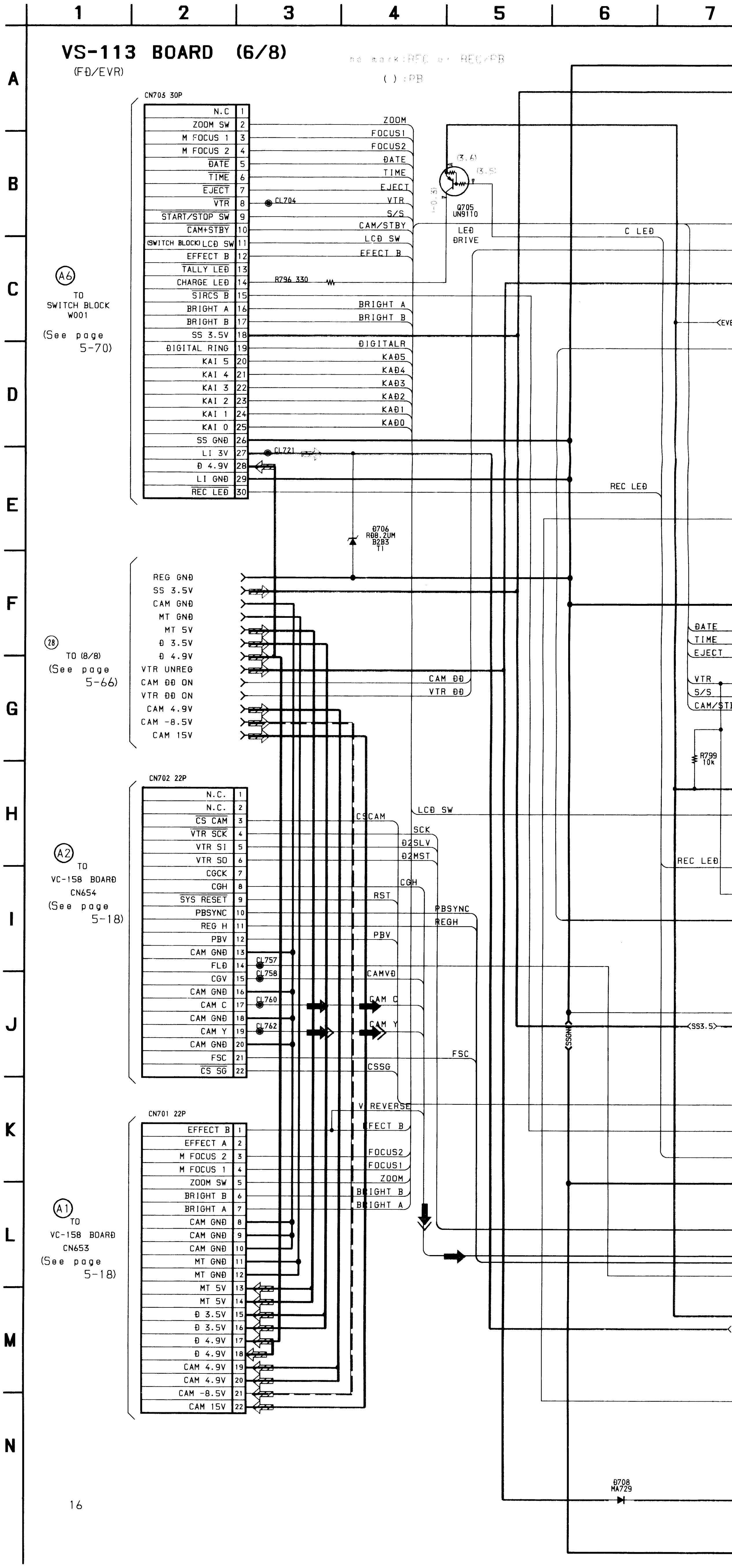

Q001
S001
S002
R001
R002
R003
R004
H001
H002
Q002
1-649-040- 12

— Ref. No. : VS-113 Board; 4,000 Series —

FP-316 BOARD



Q001
S001
S002
H001
R004
R003
Q001
R001
R002
H002
Q002
1-657-498- 11



1
2
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4
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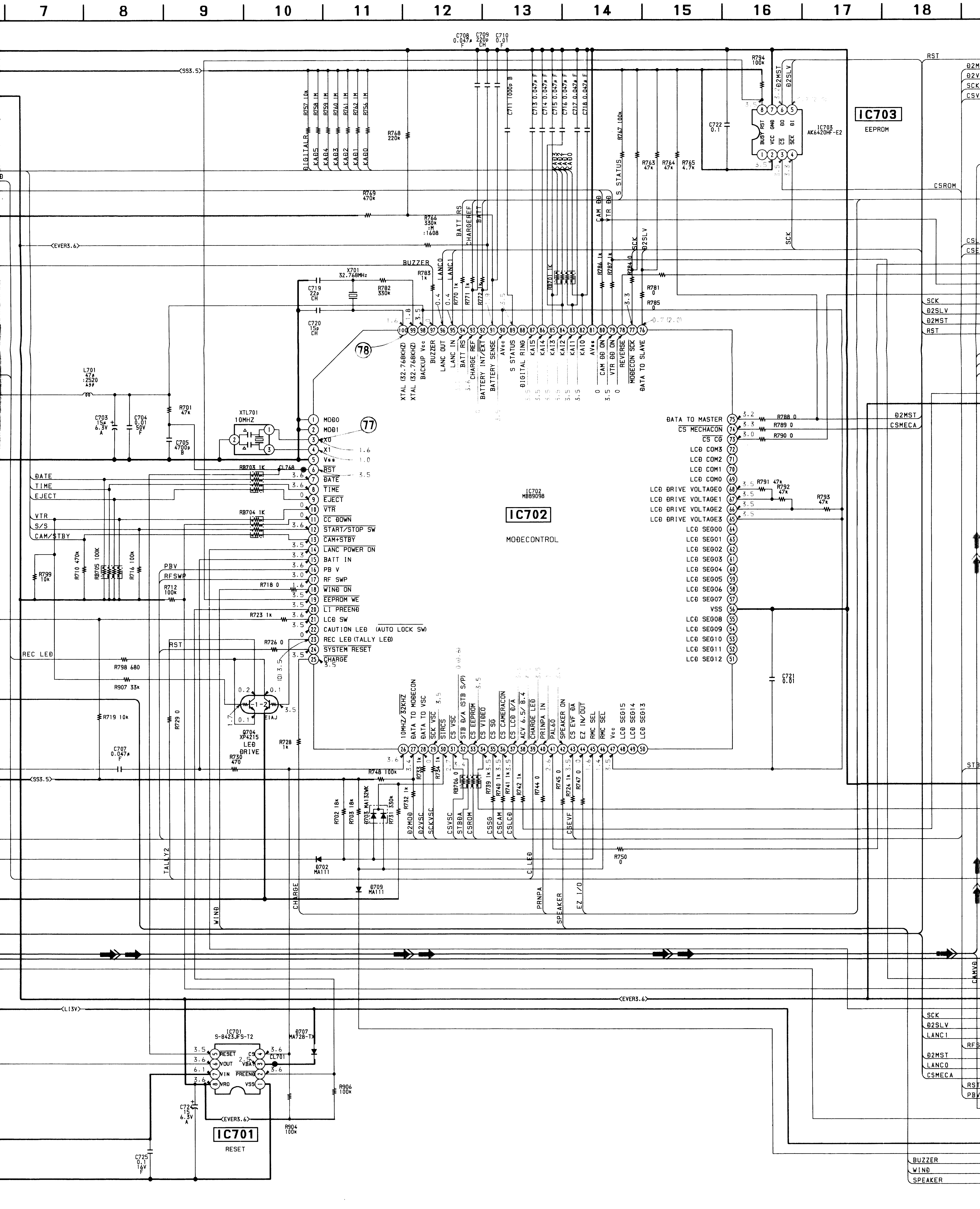
6
7
A
B
C
D
E
F
G
H
I
J
K
L
M
N
VS-113 BOARD (6/8)
(FD/EVR)
no mark:REC or REC/PB
( ):PB
CN703 30P
N.C 1
ZOOM SW 2
M FOCUS 1 3
M FOCUS 2 4
DATE 5
TIME 6
EJECT 7
VTR 8
START/STOP SW 9
CAM+STBY 10
(SWITCH BLOCK) LCD SW 11
EFFECT B 12
TALLY LED 13
CHARGE LED 14
SIRCS B 15
BRIGHT A 16
BRIGHT B 17
SS 3.5V 18
DIGITAL RING 19
KAI 5 20
KAI 4 21
KAI 3 22
KAI 2 23
KAI 1 24
KAI 0 25
SS GND 26
LI 3V 27
D 4.9V 28
LI GND 29
REC LED 30
A6
TO SWITCH BLOCK W001
(See page 5-70)
CL704
R796 330
CL721
ZOOM
FOCUS1
FOCUS2
DATE
TIME
EJECT
VTR
S/S
CAM/STBY
LCD SW
EFFECT B
BRIGHT A
BRIGHT B
DIGITALR
KAD5
KAD4
KAD3
KAD2
KAD1
KAD0
(3.4)
(3.5)
(-0.3)
Q705 UN9110
LED DRIVE
C LED
REC LED
D706 RD8.2UM B2B3 T1
REG GND
SS 3.5V
CAM GND
MT GND
MT 5V
D 3.5V
D 4.9V
VTR UNREG
CAM DD ON
VTR DD ON
CAM 4.9V
CAM -8.5V
CAM 15V
28
TO (8/8)
(See page 5-66)
CAM DD
VTR DD
DATE
TIME
EJECT
VTR
S/S
CAM/STBY
R799 10k
CN702 22P
N.C. 1
N.C. 2
CS CAM 3
VTR SCK 4
VTR SI 5
VTR SO 6
CGCK 7
CGH 8
SYS RESET 9
PBSYNC 10
REG H 11
PBV 12
CAM GND 13
FLD 14
CGV 15
CAM GND 16
CAM C 17
CAM GND 18
CAM Y 19
CAM GND 20
FSC 21
CS SG 22
A2
TO VC-158 BOARD CN654
(See page 5-18)
CL757
CL758
CL760
CL762
CSCAM
LCD SW
SCK
D2SLV
D2MST
CGH
RST
PBSYNC
REGH
PBV
CAMVD
CAM C
CAM Y
FSC
CSSG
REC LED
(SS3.5)
(SS3.5)
CN701 22P
EFFECT B 1
EFFECT A 2
M FOCUS 2 3
M FOCUS 1 4
ZOOM SW 5
BRIGHT B 6
BRIGHT A 7
CAM GND 8
CAM GND 9
CAM GND 10
MT GND 11
MT GND 12
MT 5V 13
MT 5V 14
D 3.5V 15
D 3.5V 16
D 4.9V 17
D 4.9V 18
CAM 4.9V 19
CAM 4.9V 20
CAM -8.5V 21
CAM 15V 22
A1
TO VC-158 BOARD CN653
(See page 5-18)
V REVERSE
EFECT B
FOCUS2
FOCUS1
ZOOM
BRIGHT B
BRIGHT A
D708 MA729
16

or printed wiring board.


7
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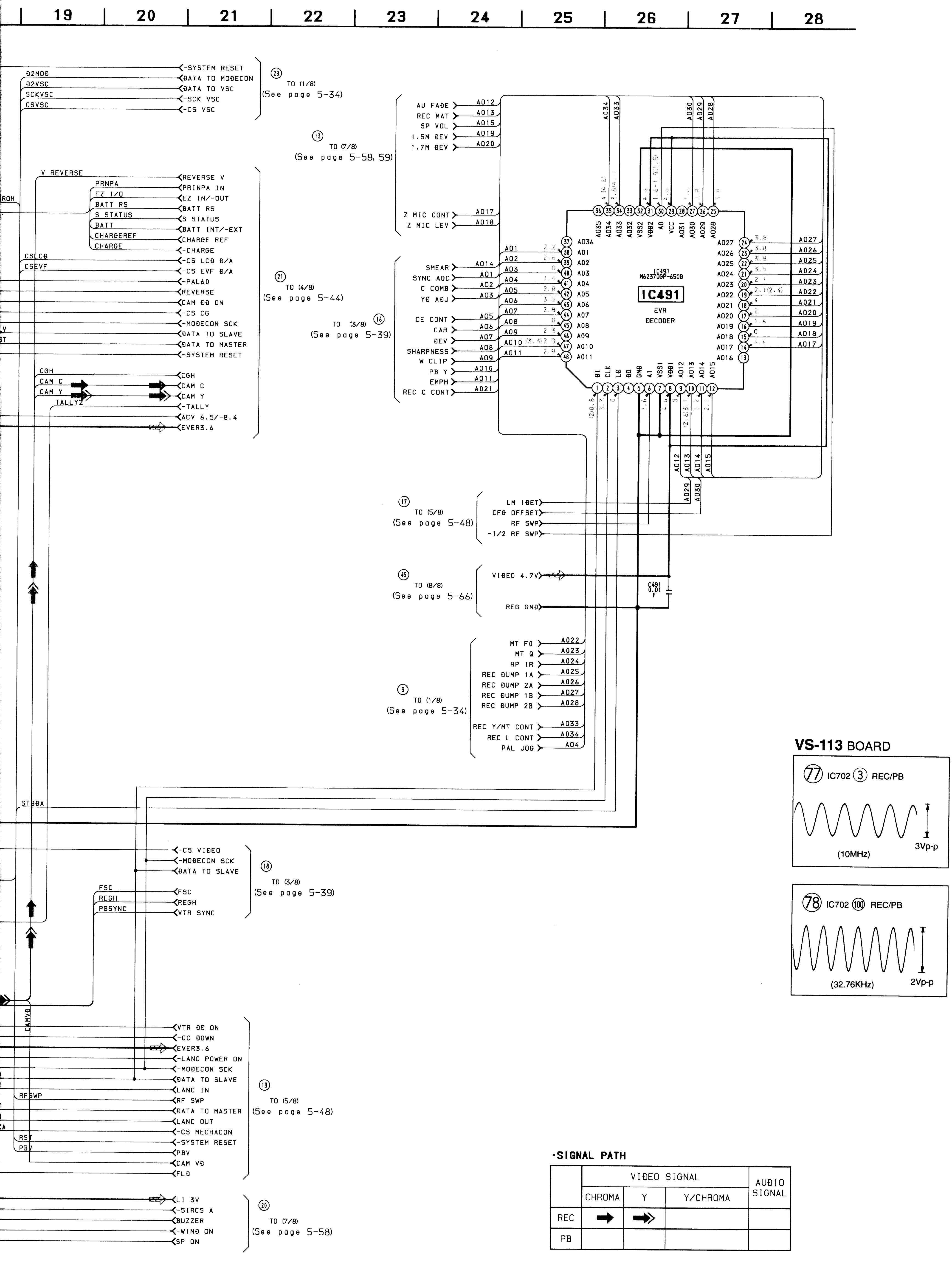
17
18
IC702
MB89098
MODECONTROL
IC703
AK6420HF-E2
EEPROM
IC701
S-8423JFS-T2
RESET
X701 32.768MHz
XTL701 10MHZ
Q704 XP4215 LED DRIVE
D703 MA132WK
D702 MA111
D709 MA111
D707 MA728-TX
L701 47μ
MODO
MOD1
XO
X1
Vss
RST
DATE
TIME
EJECT
VTR
CC DOWN
START/STOP SW
CAM+STBY
LANC POWER ON
BATT IN
PB V
RF SWP
WIND ON
EEPROM WE
LI PREEND
LCD SW
CAUTION LED (AUTO LOCK SW)
REC LED (TALLY LED)
SYSTEM RESET
CHARGE
10MHZ/32KHZ
DATA TO MODECON
DATA TO VSC
SCK VSC
SIRCS
CS VSC
STB D/A (STB S/P)
CS EEPROM
CS VIDEO
CS SG
CS CAMERACON
CS LCD D/A
ACV 6.5/8.4
CHARGE LED
PRINPA IN
PAL60
SPEAKER ON
CS EVF DA
EZ IN/OUT
RMC SEL
RMC SEL
Vcc
LCD SEG15
LCD SEG14
LCD SEG13
LCD SEG12
LCD SEG11
LCD SEG10
LCD SEG09
LCD SEG08
VSS
LCD SEG07
LCD SEG06
LCD SEG05
LCD SEG04
LCD SEG03
LCD SEG02
LCD SEG01
LCD SEG00
LCD DRIVE VOLTAGE3
LCD DRIVE VOLTAGE2
LCD DRIVE VOLTAGE1
LCD DRIVE VOLTAGE0
LCD COM0
LCD COM1
LCD COM2
LCD COM3
CS CG
CS MECHACON
DATA TO MASTER
DATA TO SLAVE
MODECON SCK
REVERSE
VTR DD ON
CAM DD ON
AVss
KAI0
KAI1
KAI2
KAI3
KAI4
KAI5
DIGITAL RING
S STATUS
AVcc
BATTERY SENSE
BATTERY INT/EXT
CHARGE REF
BATT RS
LANC IN
LANC OUT
BUZZER
BACKUP Vcc
XTAL (32.768KHZ)
XTAL (32.768KHZ)
DIGITALR
KAD5
KAD4
KAD3
KAD2
KAD1
KAD0
<SS3.5>
<EVER3.6>
<LI3V>
RST
D2MST
D2SLV
SCK
CSROM
CSMECA
LANC1
LANC0
BUZZER
WIND
SPEAKER
TALLY2
CHARGE
WIND
PRNPA
SPEAKER
EZ I/O
C LED
REC LED
PBV
RFSWP
CAM/STBY
S/S
DATE
TIME
EJECT
VTR
D2MOD
D2VSC
SCKVSC
CSVSC
STBDA
CSROM
CSSG
CSCAM
CSLCD
CSEVF

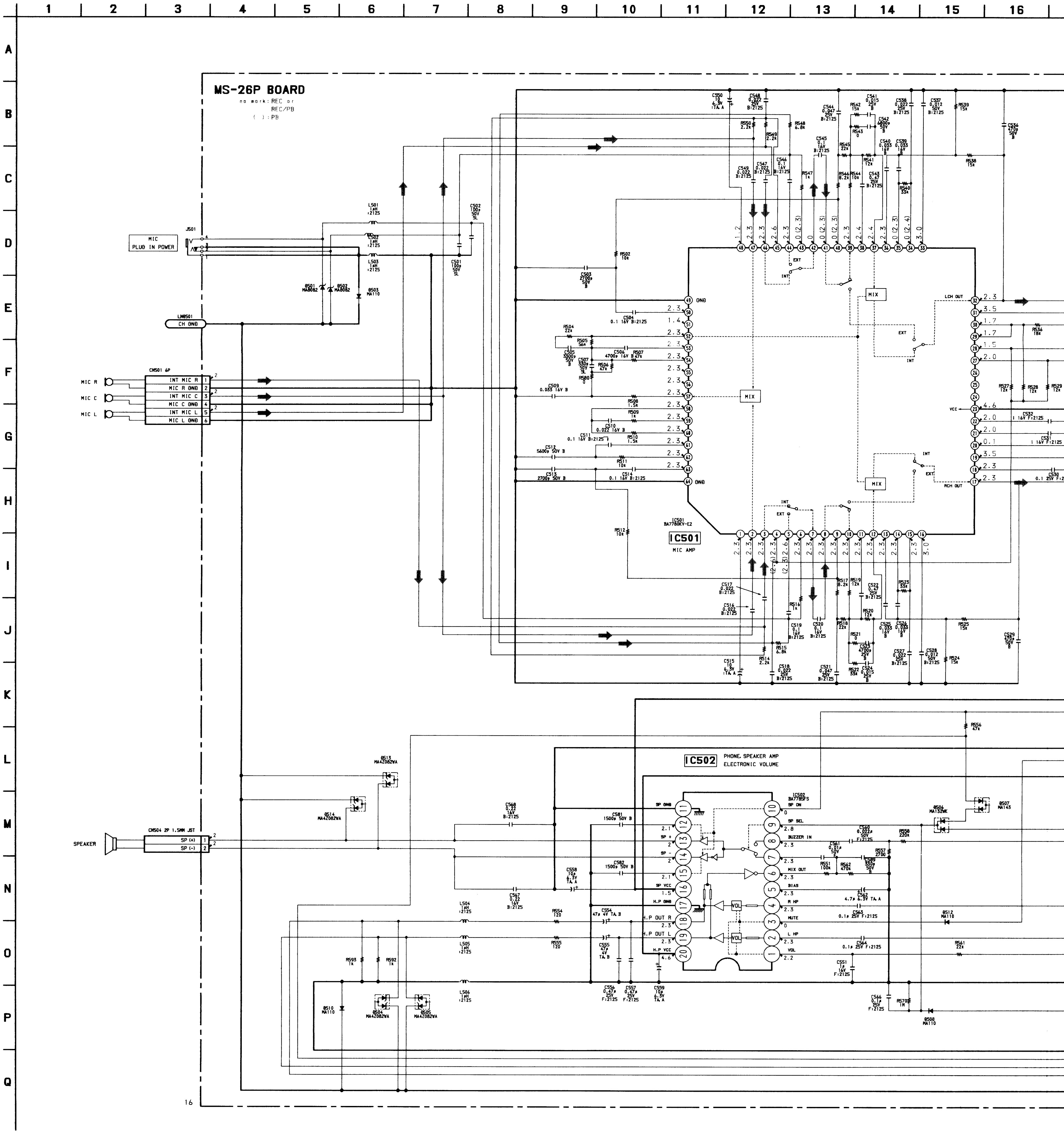

19
20
21
22
23
24
25
26
27
28
D2MOD
D2VSC
SCKVSC
CSVSC
-SYSTEM RESET
DATA TO MODECON
DATA TO VSC
-SCK VSC
-CS VSC
(29)
TO (1/8)
(See page 5-34)
AU FADE
REC MAT
SP VOL
1.5M DEV
1.7M DEV
AO12
AO13
AO15
AO19
AO20
(13)
TO (7/8)
(See page 5-58, 59)
Z MIC CONT
Z MIC LEV
AO17
AO18
V REVERSE
PRNPA
EZ I/O
BATT RS
S STATUS
BATT
CHARGEREF
CHARGE
ROM
REVERSE V
PRINPA IN
EZ IN/-OUT
BATT RS
S STATUS
BATT INT/-EXT
CHARGE REF
-CHARGE
CSLCD
CSEVF
-CS LCD D/A
-CS EVF D/A
-PAL60
REVERSE
CAM DD ON
-CS CG
-MODECON SCK
DATA TO SLAVE
DATA TO MASTER
-SYSTEM RESET
(21)
TO (4/8)
(See page 5-44)
SMEAR
SYNC AGC
C COMB
YD ADJ
AO14
AO1
AO2
AO3
(16)
TO (3/8)
(See page 5-39)
CE CONT
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
REC C CONT
AO5
AO6
AO7
AO8
AO9
AO10
AO11
AO21
CGH
CAM C
CAM Y
TALLY2
CGH
CAM C
CAM Y
-TALLY
ACV 6.5/-8.4
EVER3.6
IC491
M62370GP-650B
IC491
EVR
DECODER
AO36
AO1
AO2
AO3
AO4
AO5
AO6
AO7
AO8
AO9
AO10
AO11
AO35
AO34
AO33
AO32
VSS2
VDD2
AO
VCC
AO31
AO30
AO29
AO28
AO27
AO26
AO25
AO24
AO23
AO22
AO21
AO20
AO19
AO18
AO17
AO16
DI
CLK
LD
DO
GND
A1
VSS1
VDD1
AO12
AO13
AO14
AO15
AO34
AO33
AO30
AO29
AO28
AO27
AO26
AO25
AO24
AO23
AO22
AO21
AO20
AO19
AO18
AO17
AO12
AO13
AO14
AO15
AO29
AO30
(17)
TO (5/8)
(See page 5-48)
LM IDET
CFG OFFSET
RF SWP
-1/2 RF SWP
(45)
TO (8/8)
(See page 5-66)
VIDEO 4.7V
REG GND
C491
0.01
F
(3)
TO (1/8)
(See page 5-34)
MT FO
MT Q
RP IR
REC DUMP 1A
REC DUMP 2A
REC DUMP 1B
REC DUMP 2B
REC Y/MT CONT
REC L CONT
PAL JOG
AO22
AO23
AO24
AO25
AO26
AO27
AO28
AO33
AO34
AO4
STBDA
-CS VIDEO
-MODECON SCK
DATA TO SLAVE
(18)
TO (3/8)
(See page 5-39)
FSC
REGH
PBSYNC
FSC
REGH
VTR SYNC
CAMVD
VTR DD ON
-CC DOWN
EVER3.6
-LANC POWER ON
-MODECON SCK
DATA TO SLAVE
LANC IN
RFSWP
RF SWP
DATA TO MASTER
LANC OUT
-CS MECHACON
-SYSTEM RESET
RST
PBV
PBV
CAM VD
FLD
(19)
TO (5/8)
(See page 5-48)
LI 3V
-SIRCS A
BUZZER
-WIND ON
SP ON
(20)
TO (7/8)
(See page 5-58)
VS-113 BOARD
(77) IC702 (3) REC/PB
3Vp-p
(10MHz)
(78) IC702 (100) REC/PB
2Vp-p
(32.76KHz)

·SIGNAL PATH

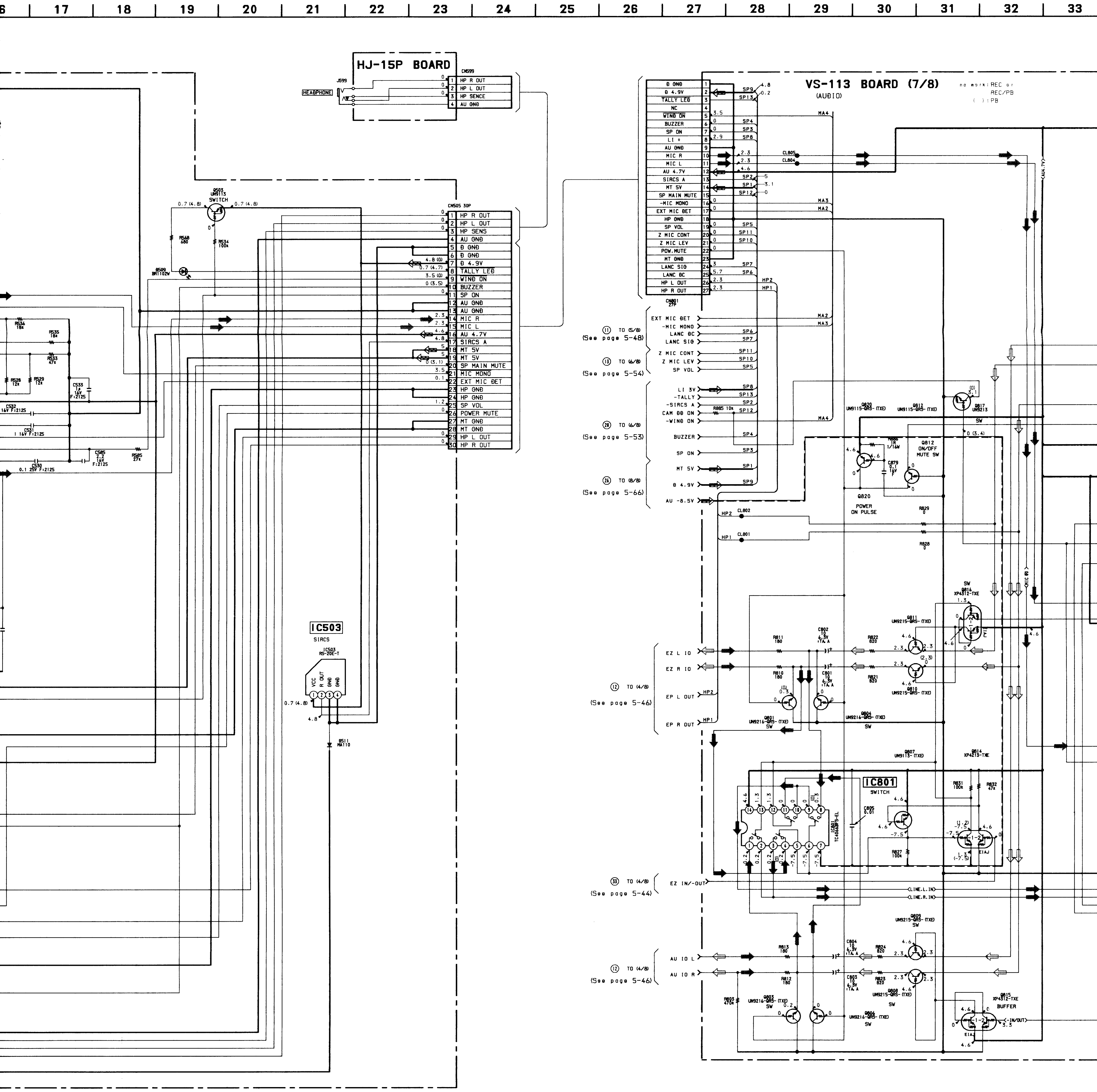
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》		
PB				

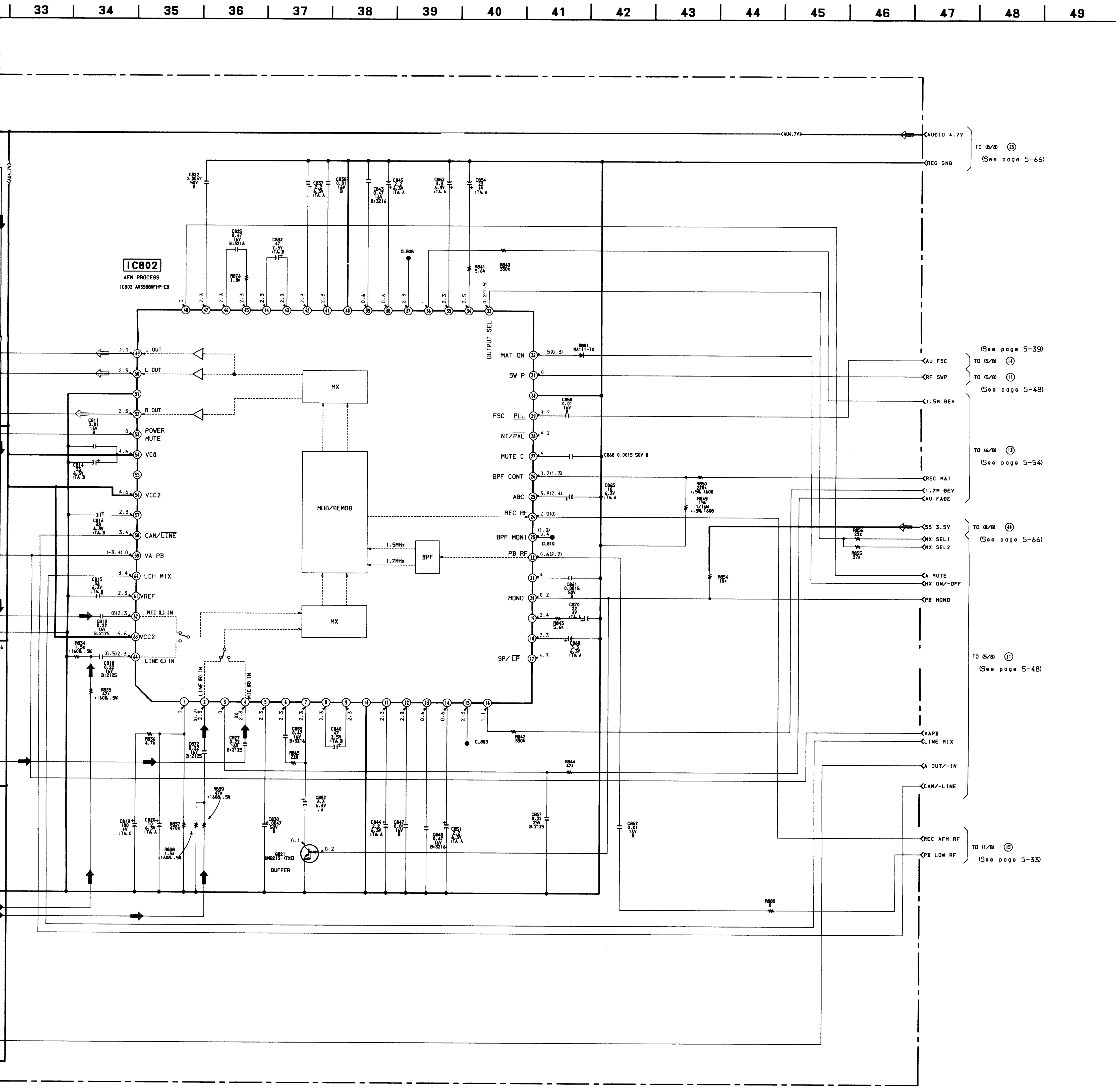
VS-113 (AUDIO), MS-26P (MIC), HJ-15P (HEADPHONE) SCHEMATIC DIAGRAMS • Refer to page 5-24 for printed wiring board.

— Ref. No. : VS-113 Board; 4,000 Series, MS-26P Board and HJ-15PBoard; 1,000 Series —



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K L M N O P Q
MS-26P BOARD
no mark : REC or REC/PB
( ) : PB
MIC PLUG IN POWER
J501
L501 1μH :2125
L502 1μH :2125
L503 1μH :2125
D501 MA8082
D502 MA8082
D503 MA110
LND501 CH GND
CN501 6P
MIC R
MIC C
MIC L
INT MIC R
MIC R GND
INT MIC C
MIC C GND
INT MIC L
MIC L GND
IC501 BA7780KV-E2
IC501 MIC AMP
MIX
EXT
INT
LCH OUT
RCH OUT
VCC
GND
IC502 PHONE, SPEAKER AMP ELECTRONIC VOLUME
IC502 BA7785FS
SP GND
SP +
SP -
SP VCC
H.P GND
H.P OUT R
H.P OUT L
H.P VCC
SP ON
SP SEL
BUZZER IN
MIX OUT
BIAS
R HP
MUTE
L HP
VOL
CN504 2P 1.5MM JST
SPEAKER
SP (+)
SP (-)
D513 MA4Z082WA
D514 MA4Z082WA
D504 MA4Z082WA
D505 MA4Z082WA
D510 MA110
D506 MA132WK
D507 MA143
D508 MA110
D512 MA110
L504 1μH :2125
L505 1μH :2125
L506 1μH :2125
16


6
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
HJ-15P BOARD
J599
HEADPHONE
CN599
1 HP R OUT
2 HP L OUT
3 HP SENCE
4 AU GND
Q503
UN9113
SWITCH
0.7 (4.8)
R568
680
R534
100k
D509
BR1102W
R536
18k
R535
18k
R533
47k
R528
12k
R529
12k
C533
1µ
16V
F:2125
C532
16V F:2125
C531
1 16V F:2125
C585
2.2
16V
F:2125
R585
27k
C530
0.1 25V F:2125
CN505 30P
1 HP R OUT
2 HP L OUT
3 HP SENS
4 AU GND
5 D GND
6 D GND
7 D 4.9V
8 TALLY LED
9 WIND ON
10 BUZZER
11 SP ON
12 AU GND
13 AU GND
14 MIC R
15 MIC L
16 AU 4.7V
17 SIRCS A
18 MT 5V
19 MT 5V
20 SP MAIN MUTE
21 MIC MONO
22 EXT MIC DET
23 HP GND
24 HP GND
25 SP VOL
26 POWER MUTE
27 MT GND
28 MT GND
29 HP L OUT
30 HP R OUT
4.8 (0)
0.7 (4.7)
3.5 (0)
0 (3.5)
2.3
4.6
4.8
5
0 (3.1)
3.5
0.1
1.2
IC503
SIRCS
IC503
RS-20E-T
VCC
R OUT
GND
GND
0.7 (4.8)
4.8
D511
MA110
VS-113 BOARD (7/8)
(AUDIO)
no mark : REC or
REC/PB
( ) : PB
CN801
27P
1 D GND
2 D 4.9V
3 TALLY LED
4 NC
5 WIND ON
6 BUZZER
7 SP ON
8 LI +
9 AU GND
10 MIC R
11 MIC L
12 AU 4.7V
13 SIRCS A
14 MT 5V
15 SP MAIN MUTE
16 -MIC MONO
17 EXT MIC DET
18 HP GND
19 SP VOL
20 Z MIC CONT
21 Z MIC LEV
22 POW.MUTE
23 MT GND
24 LANC SIG
25 LANC DC
26 HP L OUT
27 HP R OUT
SP9
SP13
SP4
SP3
SP8
SP2
SP1
SP12
SP5
SP11
SP10
SP7
SP6
MA4
MA3
MA2
HP2
HP1
CL805
CL804
CL802
CL801
<AU4.7V>
<MIC R>
EXT MIC DET
-MIC MONO
LANC DC
LANC SIG
⑪ TO (5/8)
(See page 5-48)
Z MIC CONT
Z MIC LEV
SP VOL
⑬ TO (6/8)
(See page 5-54)
LI 3V
-TALLY
-SIRCS A
CAM DD ON
-WIND ON
BUZZER
SP ON
⑳ TO (6/8)
(See page 5-53)
MT 5V
D 4.9V
AU -8.5V
㉖ TO (8/8)
(See page 5-66)
R885 10k
Q820
UN9115-QRS-(TXE)
Q812
UN9115-QRS-(TXE)
Q817
UN9213
SW
R886
1M
1/16W
C879
0.1
16V
F
Q812
ON/OFF
MUTE SW
Q820
POWER
ON PULSE
R829
0
R828
0
SW
Q816
XP4312-TXE
Q811
UN9215-QRS-(TXE)
Q810
UN9215-QRS-(TXE)
R811
180
R810
180
C802
10
6.3V
TA A
C801
10
6.3V
TA A
R822
820
R821
820
EZ L IO
EZ R IO
EP L OUT
EP R OUT
⑫ TO (4/8)
(See page 5-46)
Q801
UN9216-QRS-(TXE)
SW
Q804
UN9216-QRS-(TXE)
SW
Q807
UN9113-(TXE)
Q814
XP4213-TXE
IC801
SWITCH
IC801
TC4066BFS-EL
C805
0.01
R831
100k
R832
47k
R827
100k
EIAJ
EZ IN/-OUT
㉝ TO (4/8)
(See page 5-44)
<LINE.L.IN>
<LINE.R.IN>
Q809
UN9215-QRS-(TXE)
SW
R813
180
R812
180
C804
10
6.3V
TA A
C803
10
6.3V
TA A
R824
820
R823
820
AU IO L
AU IO R
⑫ TO (4/8)
(See page 5-46)
Q808
UN9215-QRS-(TXE)
SW
R803
470k
Q803
UN9216-QRS-(TXE)
SW
Q806
UN9216-QRS-(TXE)
SW
Q815
XP4312-TXE
BUFFER
<-IN/OUT>


33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
IC802
AFM PROCESS
IC802 AN3988NFHP-EB
L OUT
L OUT
R OUT
POWER MUTE
VCC
VCC2
CAM/LINE
VA PB
LCH MIX
VREF
MIC (L) IN
VCC2
LINE (L) IN
LINE (R) IN
MIC (R) IN
MX
MOD/DEMOD
BPF
1.5MHz
1.7MHz
MX
OUTPUT SEL
MAT ON
SW P
FSC PLL
NT/PAL
MUTE C
BPF CONT
AGC
REC RF
BPF MONI
PB RF
MONO
SP/LP
CL808
CL809
CL810
Q821
UN9213-(TX)
BUFFER
D801
MA111-TX
AUDIO 4.7V
REG GND
TO (8/8) ㉕
(See page 5-66)
(See page 5-39)
AU FSC
TO (3/8) ⑭
RF SWP
TO (5/8) ⑪
(See page 5-48)
1.5M DEV
TO (6/8) ⑬
(See page 5-54)
REC MAT
1.7M DEV
AU FADE
SS 3.5V
TO (8/8) (40)
(See page 5-66)
MX SEL1
MX SEL2
A MUTE
MX ON/-OFF
PB MONO
TO (5/8) ⑪
(See page 5-48)
VAPB
LINE MIX
A OUT/-IN
CAM/-LINE
REC AFM RF
PB LOW RF
TO (1/8) ⑮
(See page 5-33)

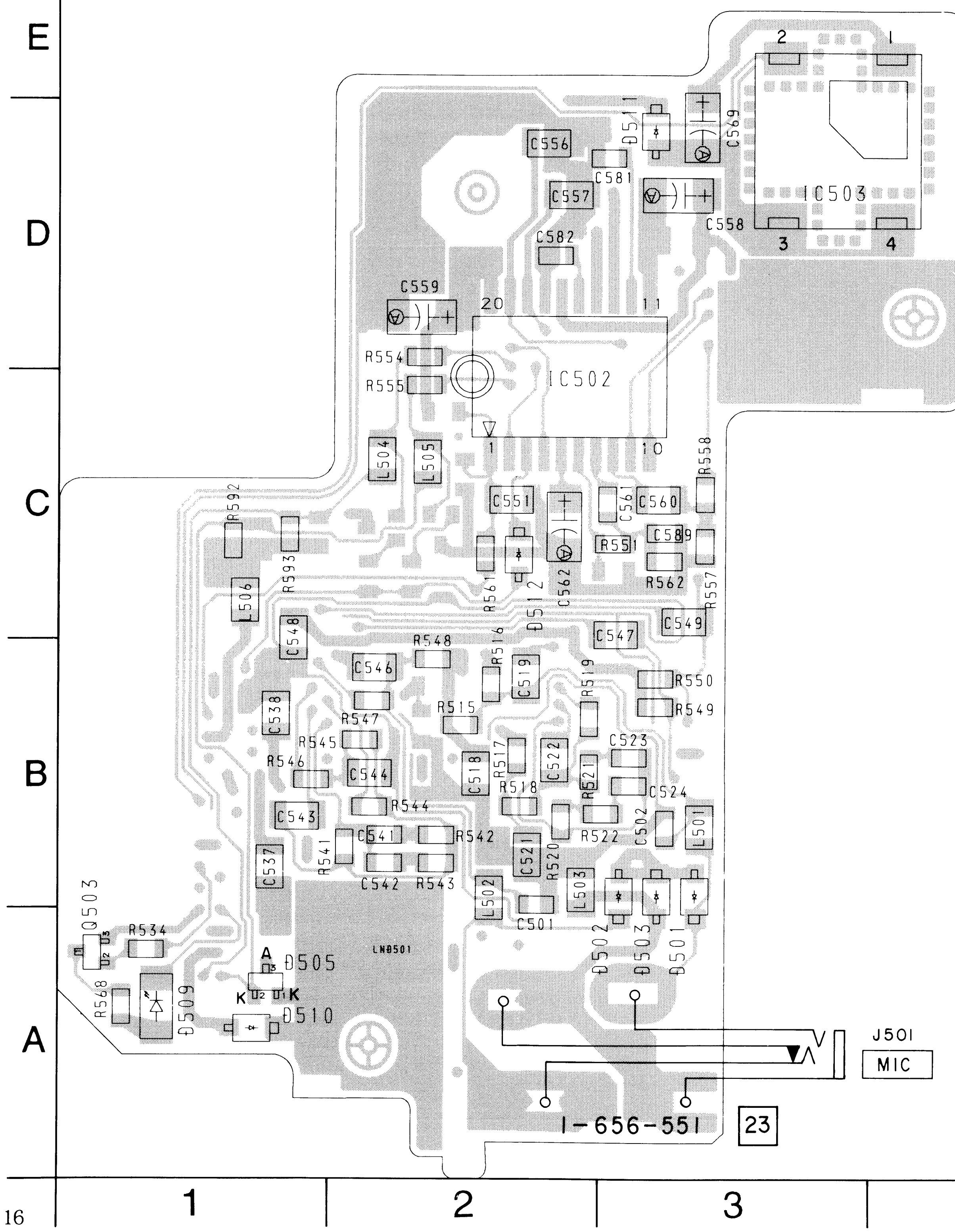
·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

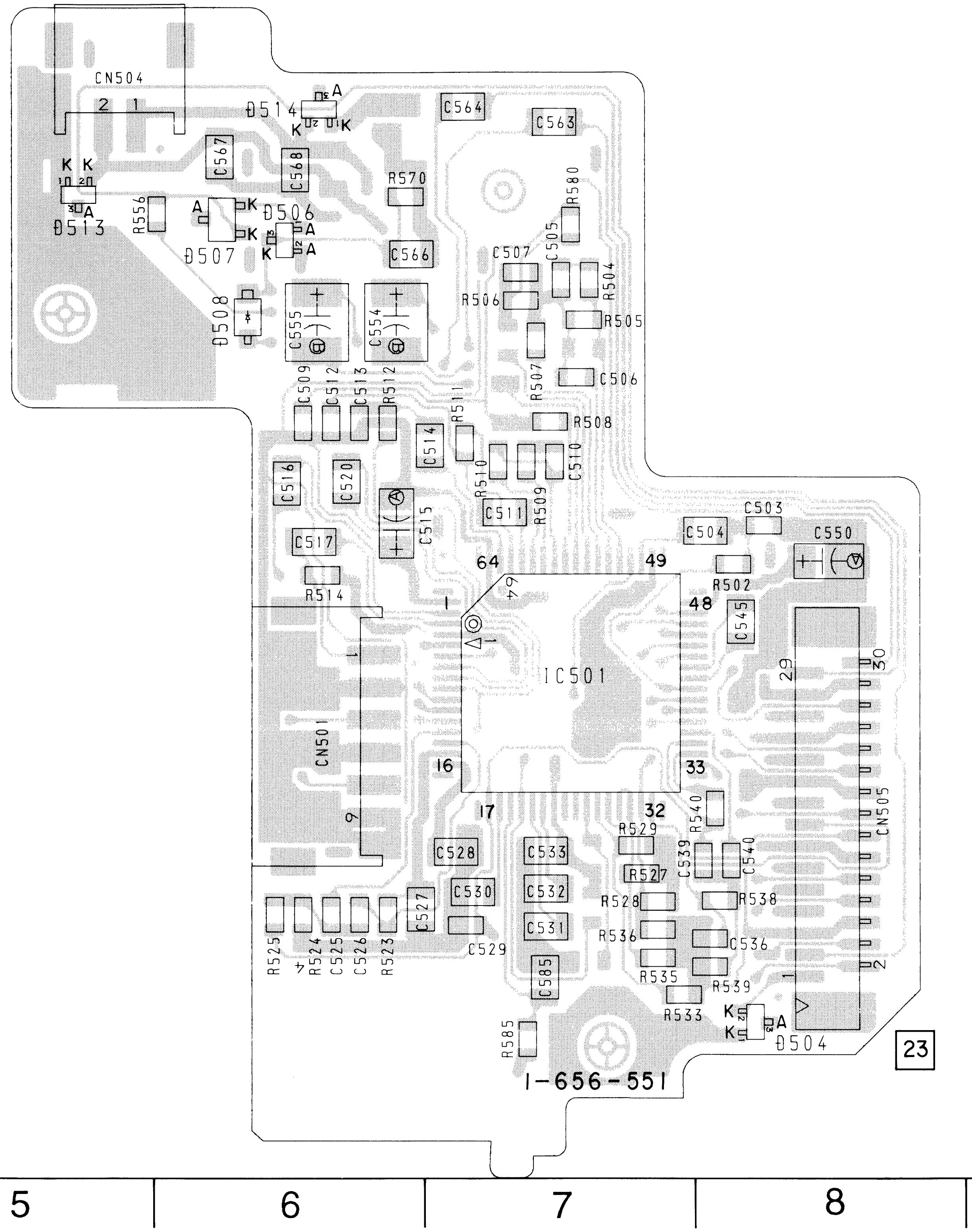
MS-26P (MIC), HJ-15P (HEADPHONE) PRINTED WIRING BOARDS

— Ref. No. : MS-26P Board and HJ-15P Board; 1,000 Series —

MS-26P BOARD (SIDE A)


E
D
C
B
A
1
2
3
IC503
IC502
C556
C557
C581
C582
C558
C559
C569
D511
R554
R555
L504
L505
C551
C561
C560
C589
R551
R562
R558
R557
R561
D512
C562
C547
C549
R592
R593
L506
C548
R548
C546
R516
C519
R519
R550
R549
R515
C538
R547
R545
R546
C544
C523
C518
R517
C522
R521
C524
R518
R544
C543
C541
R542
R541
C537
C542
R543
C521
R520
R522
C502
L501
L502
L503
C501
D502
D503
D501
D503
R534
R568
D509
D505
D510
J501
MIC
1-656-551
23

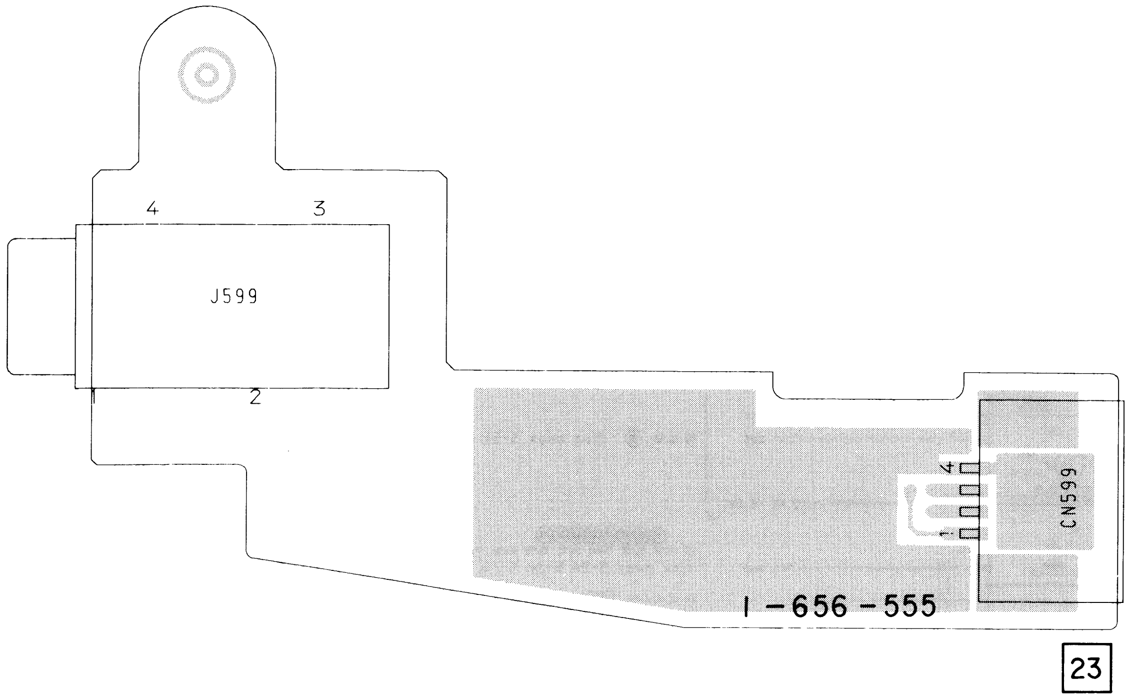
MS-26P BOARD (SIDE B)


CN504
D514
C564
C563
C567
C568
R570
D513
R556
D506
D507
C566
C507
C505
R580
R506
R504
R505
D508
C555
C554
C509
C512
C513
R512
R511
R507
C506
R508
C514
R510
R509
C510
C516
C520
C515
C511
C504
C503
C550
C517
R514
R502
C545
IC501
CN501
CN505
64
49
48
16
17
32
33
29
30
R529
R540
C539
C540
R527
R528
R538
R536
C536
R535
R539
R533
D504
C528
C533
C530
C532
C531
C527
C529
C585
R525
R524
C525
C526
R523
R585
1-656-551
23
5
6
7
8

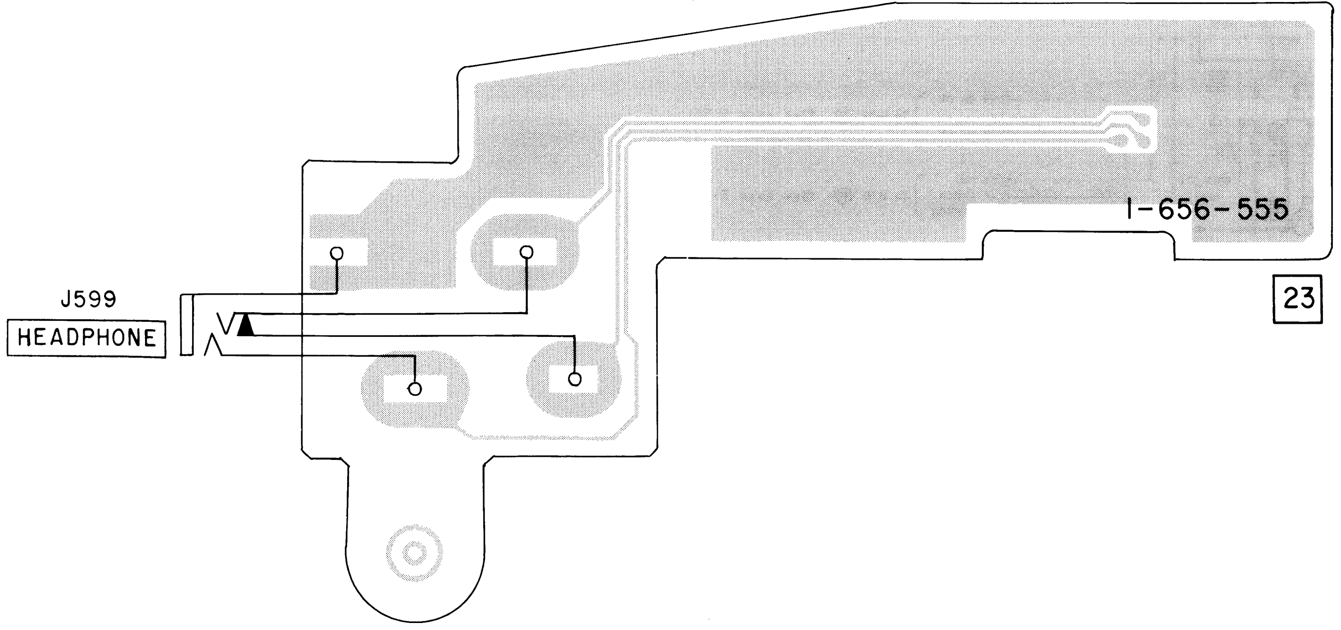
HJ
HJ-1
J599
HEADPHONE
9

16

HJ-15P BOARD (SIDE A)


4
3
J599
2
1
4
1
CN599
1 -656 -555
23

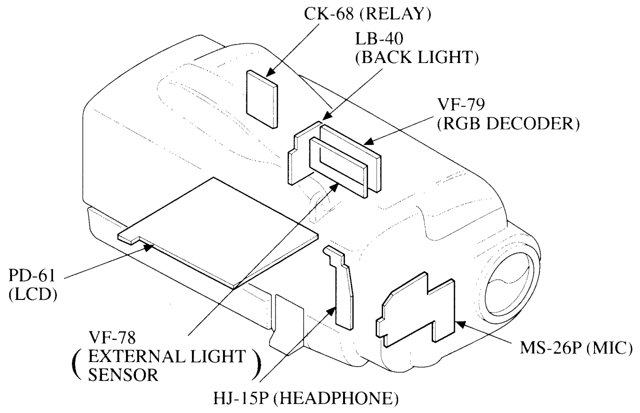
HJ-15P BOARD (SIDE B)


1-656-555
23
J599
HEADPHONE

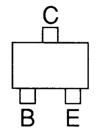
9	10	11	12

MS-26P BOARD

C501	B–2
C502	B–3
C503	C–8
C504	C–8
C505	D–5
C506	C–7
C507	D–7
C509	C–6
C510	C–7
C511	C–7
C512	C–6
C513	C–6
C514	C–7
C515	C–6
C516	C–6
C517	C–6
C518	B–2
C519	B–2
C520	C–6
C521	B–2
C522	B–2
C523	B–3
C524	B–3
C525	A–6
C526	A–6
C527	A–6
C528	B–7
C529	A–7
C530	B–7
C531	A–7
C532	B–7
C533	B–7
C536	A–8
C537	B–1
C538	B–1
C539	B–8
C540	B–8
C541	B–2
C542	B–2
C543	B–1
C544	B–2
C545	C–8
C546	B–2
C547	C–3
C548	C–1
C549	C–3
C550	C–8
C551	C–2
C554	D–6
C555	D–6
C556	D–2
C557	D–2
C558	D–3
C559	D–2
C560	C–3
C561	C–3
C562	C–2
C563	D–7
C564	D–7
C566	D–6
C567	D–6
C568	D–6
C581	D–3
C582	D–2
C585	A–7
C589	C–3
CN501	B–6
CN504	E–5
CN505	B–8
D501	B–3
D502	B–3
D503	B–3
D504	A–8
D505	A–1
D506	D–6
D507	D–6
D508	D–6
D509	A–1
D510	A–1
D511	D–3
D512	C–2
D513	D–5
D514	D–6
IC501	B–7
IC502	C–2
IC503	D–3
J501	A–3
L501	B–3
L502	B–2
L503	B–2
L504	C–2
L505	C–2
L506	C–1
Q503	A–1
R502	C–8
R503	D–7
R504	D–7
R505	D–7
R506	D–7
R507	D–7
R508	C–7
R509	C–7
R510	C–7
R511	C–7
R512	C–6
R514	C–6
R515	B–2
R516	B–2
R517	B–2
R518	B–2
R519	B–2
R520	B–2
R521	B–2
R522	B–3
R523	A–6
R524	A–6
R525	A–6
R527	B–7
R528	B–7
R529	B–7
R533	A–7
R534	A–1
R535	A–7
R536	A–7
R538	B–8
R539	A–8
R540	B–8
R541	B–2
R542	B–2
R543	B–2
R544	B–2
R545	B–2
R546	B–1
R547	B–2
R548	B–2
R549	B–3
R550	B–3
R551	C–3
R554	D–5
R555	C–2
R556	D–6
R557	C–3
R558	C–3
R561	C–2
R562	C–3
R568	A–1
R570	D–6
R580	D–7
R585	A–7
R592	C–1
R593	C–1


CK-68 (RELAY)
LB-40
(BACK LIGHT)
VF-79
(RGB DECODER)
PD-61
(LCD)
VF-78
(EXTERNAL LIGHT SENSOR)
HJ-15P (HEADPHONE)
MS-26P (MIC)

- Chip parts (3-terminal transistor)

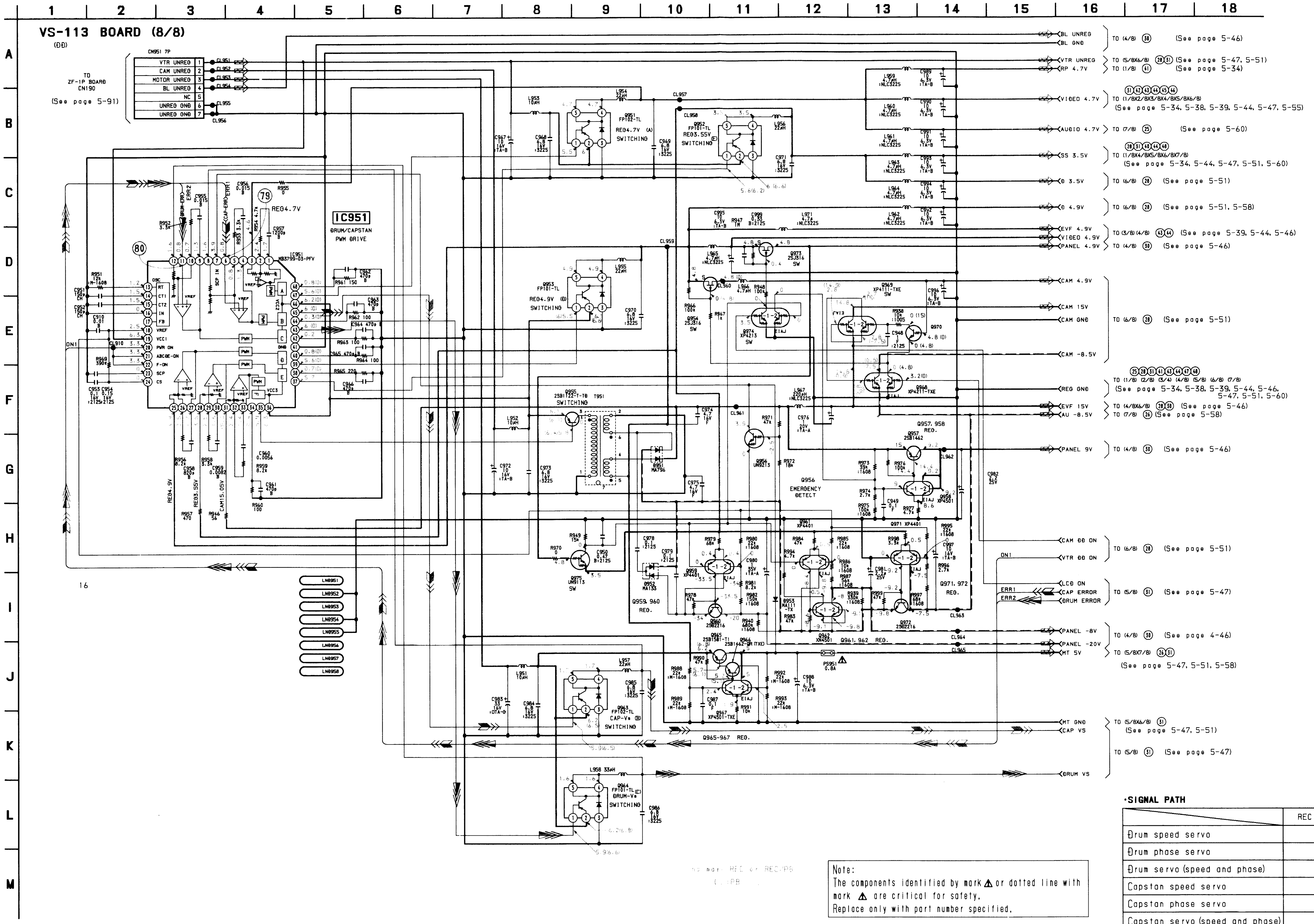


C: Collector
B: Base
E: Emitter

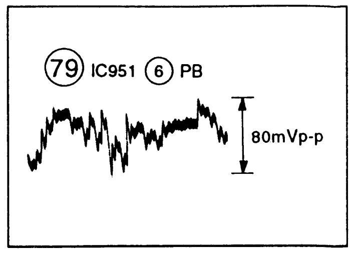
VS-113 (POWER BLOCK) SCHEMATIC DIAGRAM

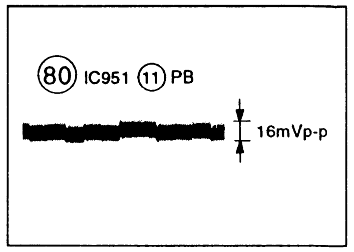
• Refer to page 5-24 for printed wiring board.

— Ref. No. : VS-113 Board; 4,000 Series —


VS-113 BOARD (8/8)
TO ZF-1P BOARD CN190 (See page 5-91)
CN951 7P
VTR UNREG
CAM UNREG
MOTOR UNREG
BL UNREG
NC
UNREG GND
UNREG GND
IC951 DRUM/CAPSTAN PWM DRIVE
IC951 MB3799-03-PFV
REG4.7V
Q951 FP102-TL RE04.7V SWITCHING
Q952 FP101-TL RE03.55V SWITCHING
Q953 FP101-TL RE04.9V SWITCHING
Q955 2SB1122-T-TD SWITCHING
T951
Q956 EMERGENCY DETECT
Q957, 958 REG.
Q959, 960 REG.
Q961, 962 REG.
Q963 FP102-TL CAP-Vs SWITCHING
Q964 FP101-TL DRUM-Vs SWITCHING
Q965-967 REG.
Q971, 972 REG.
PS951 0.8A
BL UNREG
BL GND
TO (4/8) (30) (See page 5-46)
VTR UNREG
TO (5/8)(6/8) (28)(31) (See page 5-47, 5-51)
RP 4.7V
TO (1/8) (41) (See page 5-34)
VIDEO 4.7V
(31)(42)(43)(44)(45)(46) TO (1/8)(2/8)(3/8)(4/8)(5/8)(6/8)
(See page 5-34, 5-38, 5-39, 5-44, 5-47, 5-55)
AUDIO 4.7V
TO (7/8) (25) (See page 5-60)
SS 3.5V
(28)(31)(40)(44)(48) TO (1/8)(4/8)(5/8)(6/8)(7/8)
(See page 5-34, 5-44, 5-47, 5-51, 5-60)
D 3.5V
TO (6/8) (28) (See page 5-51)
D 4.9V
TO (6/8) (28) (See page 5-51, 5-58)
EVF 4.9V
VIDEO 4.9V
TO (3/8) (4/8) (43)(44) (See page 5-39, 5-44, 5-46)
PANEL 4.9V
TO (4/8) (30) (See page 5-46)
CAM 4.9V
CAM 15V
CAM GND
CAM -8.5V
TO (6/8) (28) (See page 5-51)
REG GND
(25)(28)(31)(41)(43)(44)(47)(48) TO (1/8) (2/8) (3/4) (4/8) (5/8) (6/8) (7/8)
(See page 5-34, 5-38, 5-39, 5-44, 5-46, 5-47, 5-51, 5-60)
EVF 15V
TO (4/8)(6/8) (28)(30) (See page 5-46)
AU -8.5V
TO (7/8) (26) (See page 5-58)
PANEL 9V
TO (4/8) (30) (See page 5-46)
CAM DD ON
VTR DD ON
TO (6/8) (28) (See page 5-51)
ON1
LCD ON
ERR1
CAP ERROR
ERR2
DRUM ERROR
TO (5/8) (31) (See page 5-47)
PANEL -8V
PANEL -20V
TO (4/8) (30) (See page 4-46)
MT 5V
TO (5/8)(7/8) (26)(31) (See page 5-47, 5-51, 5-58)
MT GND
CAP VS
TO (5/8)(6/8) (31) (See page 5-47, 5-51)
TO (5/8) (31) (See page 5-47)
DRUM VS

VS-113 BOARD



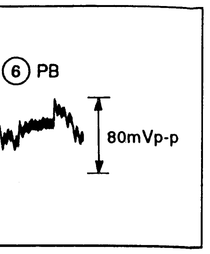


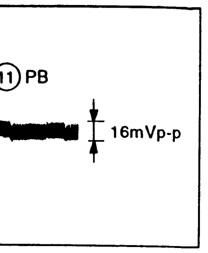
·SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⇛	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⋙	
Ref. signal			

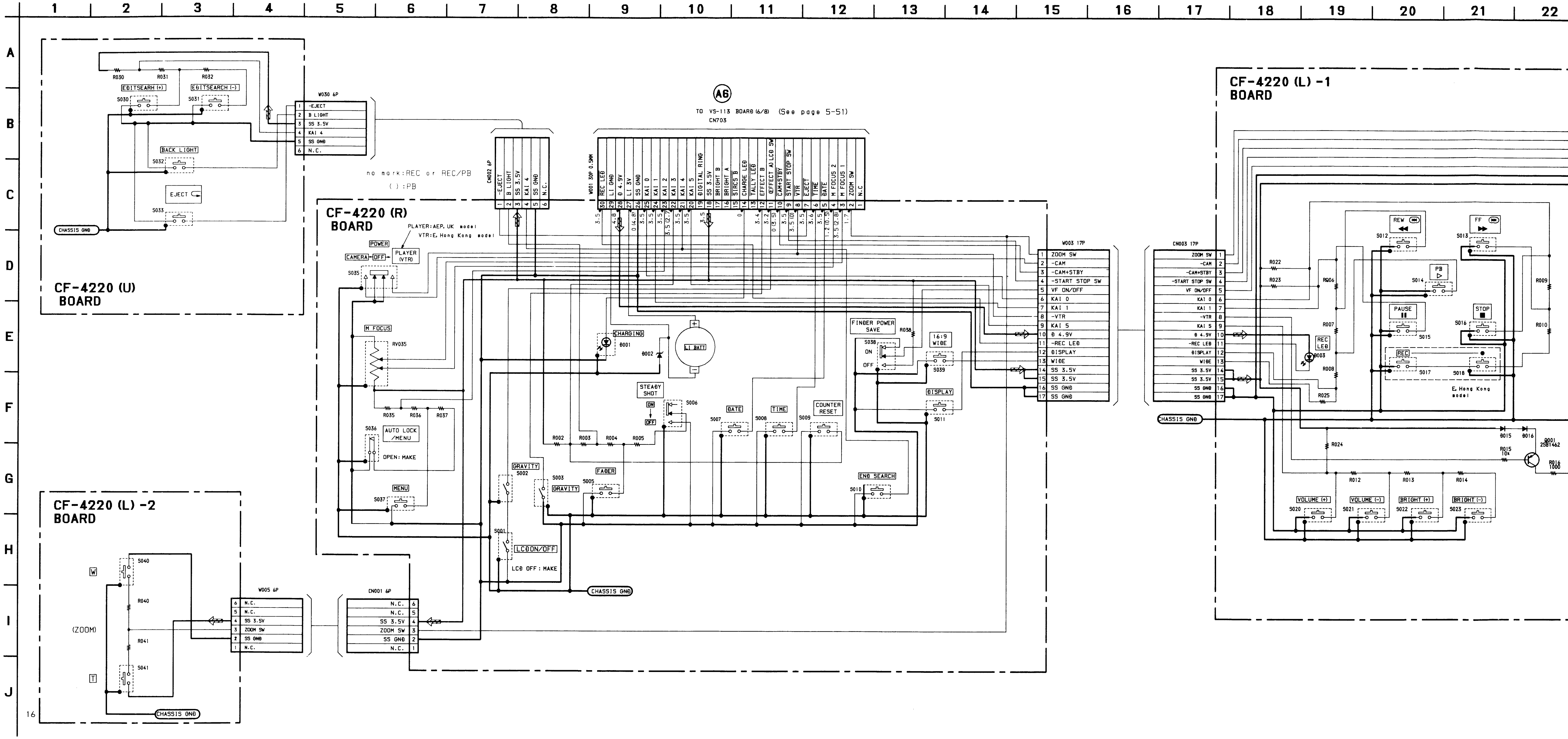
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

OARD



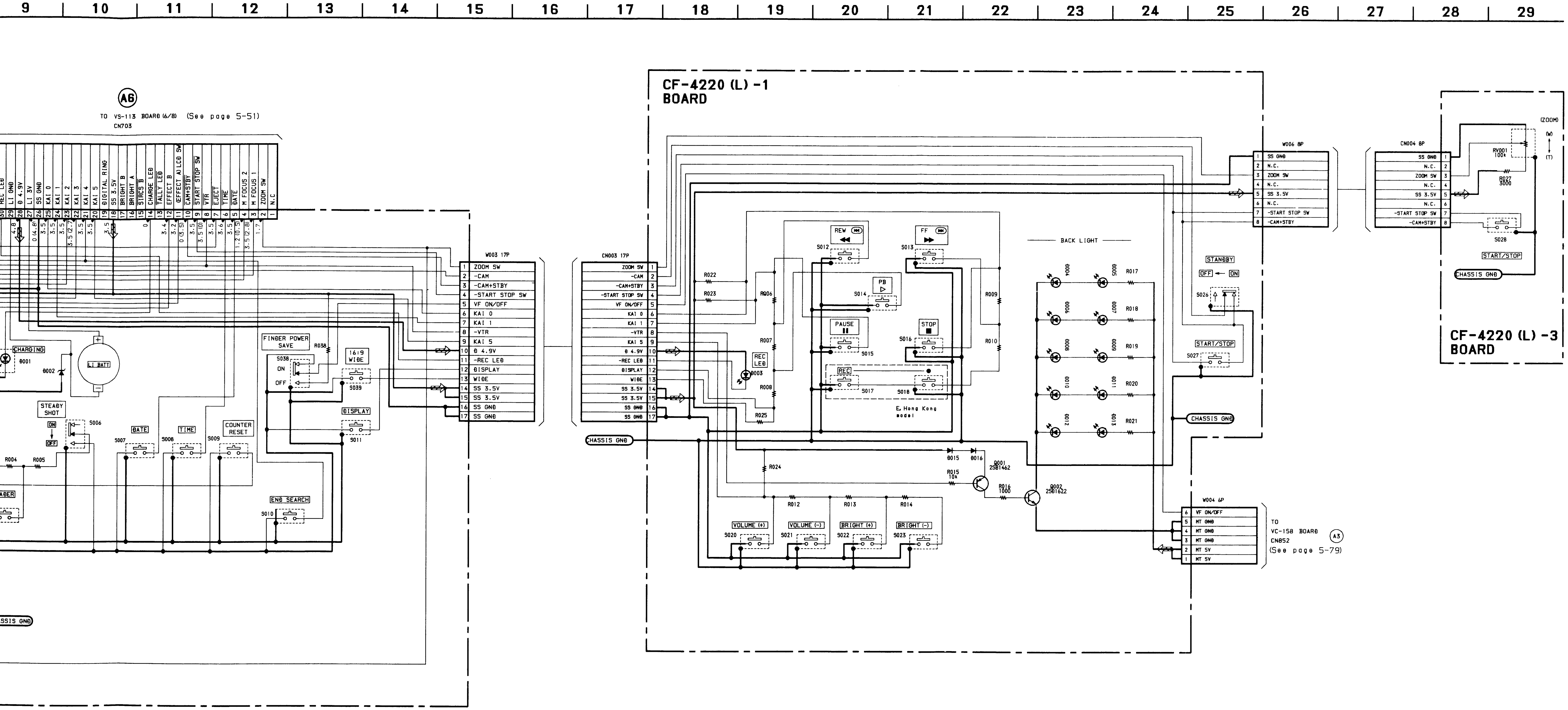


CF-4220 (SWITCH) SCHEMATIC DIAGRAM • Replaced are Blocks, so that there PRINTED WIRING BOARD are omitted.



CF-4220 (U) BOARD
R030
R031
R032
EDITSEARH (+)
EDITSEARCH (-)
S030
S031
BACK LIGHT
S032
EJECT
S033
CHASSIS GND
W030 6P
-EJECT
B LIGHT
SS 3.5V
KAI 4
SS GND
N.C.
A6
TO VS-113 BOARD (6/8) (See page 5-51)
CN703
no mark: REC or REC/PB
( ) : PB
CN002 6P
W001 30P 0.5MM
REC LED
LI GND
D 4.9V
LI 3V
KAI 0
KAI 1
KAI 2
KAI 3
KAI 5
DIGITAL RING
BRIGHT B
BRIGHT A
SIRCS B
CHARGE LED
TALLY LED
EFFECT B
(EFFECT A) LCD SW
CAM+STBY
START STOP SW
VTR
TIME
DATE
M FOCUS 2
M FOCUS 1
ZOOM SW
N.C
CF-4220 (R) BOARD
PLAYER: AEP, UK model
VTR: E, Hong Kong model
POWER
CAMERA
OFF
PLAYER (VTR)
S035
M FOCUS
RV035
R035
R036
R037
S036
AUTO LOCK /MENU
OPEN: MAKE
MENU
S037
CHARGING
D001
D002
LI BATT
STEADY SHOT
ON
OFF
S006
GRAVITY
S002
S003
GRAVITY
FADER
S005
R002
R003
R004
R005
DATE
S007
TIME
S008
COUNTER RESET
S009
FINGER POWER SAVE
R038
S038
16:9 WIDE
S039
DISPLAY
S011
END SEARCH
S010
S001
LCD ON/OFF
LCD OFF: MAKE
CHASSIS GND
W003 17P
-CAM
-CAM+STBY
-START STOP SW
VF ON/OFF
-VTR
D 4.9V
-REC LED
DISPLAY
WIDE
SS 3.5V
SS GND
CN003 17P
CF-4220 (L) -1 BOARD
R022
R023
R006
R007
R008
R025
REW ◀◀
S012
FF ▶▶
S013
PB ▷
S014
PAUSE ❚❚
S015
STOP ■
S016
REC LED
D003
REC
S017
S018
E, Hong Kong model
R009
R010
R024
R012
R013
R014
VOLUME (+)
VOLUME (-)
BRIGHT (+)
BRIGHT (-)
S020
S021
S022
S023
D015
D016
Q001 2SB1462
R015 10k
R016 1000
CF-4220 (L) -2 BOARD
W
S040
R040
(ZOOM)
R041
T
S041
W005 6P
N.C.
ZOOM SW
CN001 6P
16

mitted.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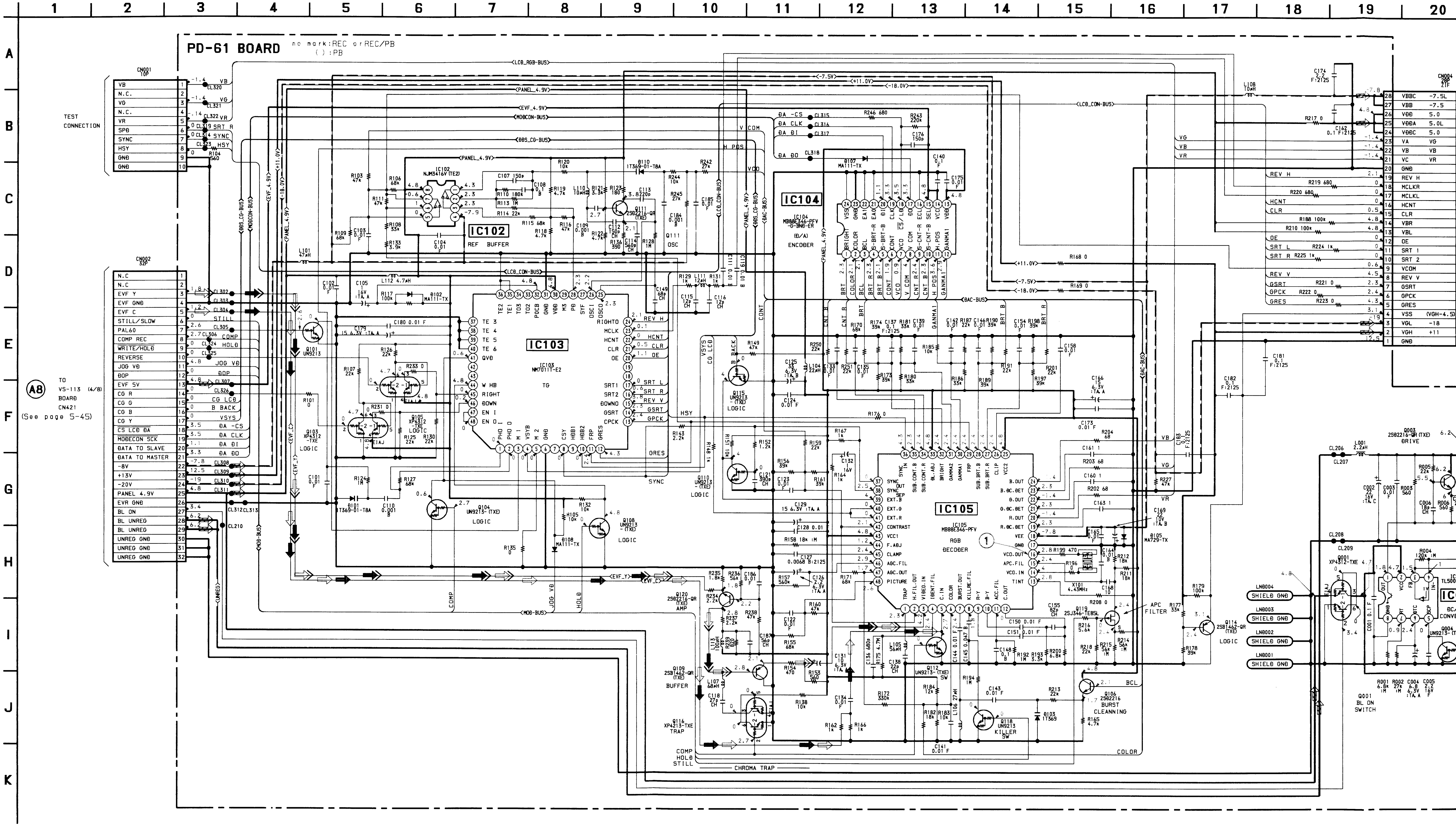
28
29
A6
TO VS-113 BOARD (6/8) (See page 5-51)
CN703
CF-4220 (L) -1
BOARD
CF-4220 (L) -3
BOARD
W003 17P
ZOOM SW
-CAM
-CAM+STBY
-START STOP SW
VF ON/OFF
KAI 0
KAI 1
-VTR
KAI 5
D 4.9V
-REC LED
DISPLAY
WIDE
SS 3.5V
SS 3.5V
SS GND
SS GND
CN003 17P
W006 8P
SS GND
N.C.
ZOOM SW
N.C.
SS 3.5V
N.C.
-START STOP SW
-CAM+STBY
CN004 8P
(ZOOM)
(W)
(T)
RV001
100k
R027
5600
S028
START/STOP
CHASSIS GND
STANDBY
OFF
ON
S026
START/STOP
S027
REW
FF
S012
S013
PB
S014
PAUSE
S015
STOP
S016
REC
S017
S018
E, Hong Kong model
REC LED
D003
R022
R023
R006
R007
R008
R009
R010
R025
R024
BACK LIGHT
D004
D005
D006
D007
D008
D009
D010
D011
D012
D013
R017
R018
R019
R020
R021
D015
D016
Q001
2SB1462
R015
10k
R016
1000
Q002
2SB1622
R012
R013
R014
VOLUME (+)
VOLUME (-)
BRIGHT (+)
BRIGHT (-)
S020
S021
S022
S023
W004 6P
VF ON/OFF
MT GND
MT GND
MT GND
MT 5V
MT 5V
TO
VC-158 BOARD
CN852
(See page 5-79)
A3
FINGER POWER SAVE
R038
S038
ON
OFF
16:9 WIDE
S039
DISPLAY
S011
CHARGING
D001
D002
LI BATT
STEADY SHOT
ON
OFF
S006
DATE
S007
TIME
S008
COUNTER RESET
S009
R004
R005
END SEARCH
S010
CHASSIS GND

PD-61 (LCD) SCHEMATIC DIAGRAM

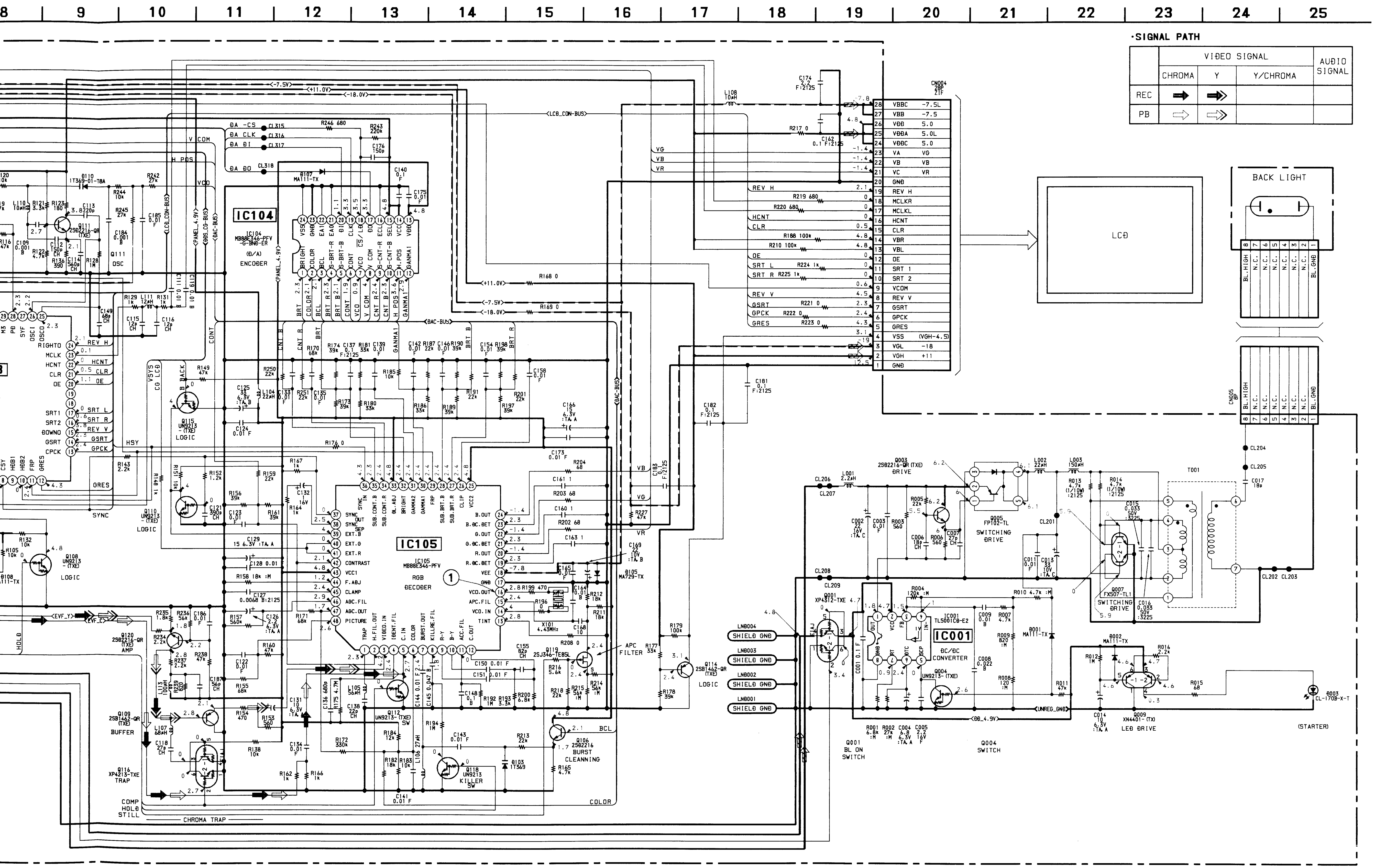
— Ref. No. : PD-61 Board; 5,000 Series —



PD-61 BOARD
no mark:REC or REC/PB
( ):PB
CN001 10P
TEST CONNECTION
VB
N.C.
VG
N.C.
VR
SPB
SYNC
HSY
GND
GND
CN002 32P
A8
TO VS-113 (4/8) BOARD CN421
(See page 5-45)
N.C
EVF Y
EVF GND
EVF C
STILL/SLOW
PAL60
COMP REC
WRITE/HOLD
REVERSE
JOG VD
DOP
EVF 5V
CG R
CG G
CG B
CG Y
CS LCD DA
MODECON SCK
DATA TO SLAVE
DATA TO MASTER
-8V
+13V
-20V
PANEL 4.9V
EVR GND
BL ON
BL UNREG
UNREG GND
IC102
NJM3416V (TE2)
REF BUFFER
IC103
NM7011T-E2
TG
IC104
MB88E346-PFV-G-BND-ER
(D/A) ENCODER
IC105
MB88E346-PFV
RGB DECODER
Q101 UN9213
Q103 XP4312-TXE LOGIC
Q104 UN9213-(TXE) LOGIC
Q105 XP4312-TXE LOGIC
Q108 UN9213-(TXE) LOGIC
Q109 2SB1462-QR (TXE) BUFFER
Q110 UN9213-(TXE) LOGIC
Q111 2SD2216-QR (TXE) OSC
Q112 UN9213-(TXE) SW
Q113 2SJ346-TE85L
Q114 2SB1462-QR (TXE) LOGIC
Q115 UN9213-(TXE) LOGIC
Q116 XP4213-TXE TRAP
Q118 UN9213 KILLER SW
Q120 2SD2216-QR (TXE) AMP
Q106 2SD2216 BURST CLEANNING
APC FILTER
X101 4.43MHz
COMP HOLD STILL
CHROMA TRAP
COLOR
<LCD_RGB-BUS>
<-7.5V>
<+11.0V>
<-18.0V>
<PANEL_4.9V>
<EVF_4.9V>
<MODECON-BUS>
<DDS_CG-BUS>
<LCD_CON-BUS>
<BAC-BUS>
<MOD-BUS>
<EVF_Y>
<EVF_C>
<UNREG>
CN004 28P
VBBC
VBB
VDD
VDDA
VDDC
VA
VB
VC
GND
REV H
MCLKR
MCLKL
HCNT
CLR
VBR
VBL
OE
SRT 1
SRT 2
VCOM
REV V
GSRT
GPCK
GRES
VSS
VGL
VGH
LN0004 SHIELD GND
LN0003 SHIELD GND
LN0002 SHIELD GND
LN0001 SHIELD GND
Q003 2SB2216-QR (TXE) DRIVE
Q001 XP4312-TXE
Q001 BL ON SWITCH
Q004 UN9213
BACK CONVE

16

PD-61 BOARD



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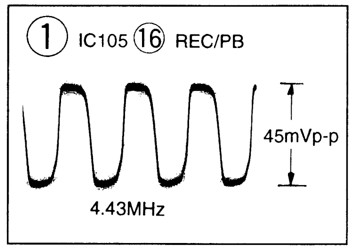
24
25
IC104
MB88E346-PFV-G-BND-ER
(D/A) ENCODER
IC105
MB88E346-PFV
RGB DECODER
IC001
TL5001CD-E2
DC/DC CONVERTER
CN004 28P ZIF
CN005 8P
LCD
BACK LIGHT
T001
Q001 BL ON SWITCH
Q004 SWITCH
Q005 FP102-TL SWITCHING DRIVE
Q003 2SB2216-QR (TXE) DRIVE
Q007 FX507-TL1 SWITCHING DRIVE
Q009 XN4401-(TX) LED DRIVE
D003 CL-170B-X-T
(STARTER)
Q106 2SB2216 BURST CLEANNING
Q118 UN9213 KILLER SW
Q119 2SJ346-TE85L
APC FILTER
Q114 2SB1462-QR (TXE) LOGIC
Q115 UN9213-(TXE) LOGIC
Q110 UN9213-(TXE) LOGIC
Q108 UN9213-(TXE) LOGIC
Q111 2SB2216-QR (TXE) OSC
Q120 2SB2216-QR (TXE) AMP
Q109 2SB1462-QR (TXE) BUFFER
Q116 XP4213-TXE TRAP
Q112 UN9213-(TXE) SW
SHIELD GND
LND004
LND003
LND002
LND001
COMP
HOLD
STILL
CHROMA TRAP
COLOR
SYNC
GRES
HSY
V COM
H POS
VCO
CONT
<LCD_CON-BUS>
<BAC-BUS>
<EVF_Y>
<EVF_C>
<-7.5V>
<+11.0V>
<-18.0V>
<DD_4.9V>
<UNREG_GND>
VBBC -7.5L
VBB -7.5
VDD 5.0
VDDA 5.0L
VDBC 5.0
VA VG
VB VB
VC VR
GND
REV H
MCLKR
MCLKL
HCNT
CLR
VBR
VBL
OE
SRT 1
SRT 2
VCOM
REV V
GSRT
GPCK
GRES
VSS (VGH-4.5)
VGL -18
VGH +11
BL.HIGH
N.C.
BL.GND

·SIGNAL PATH

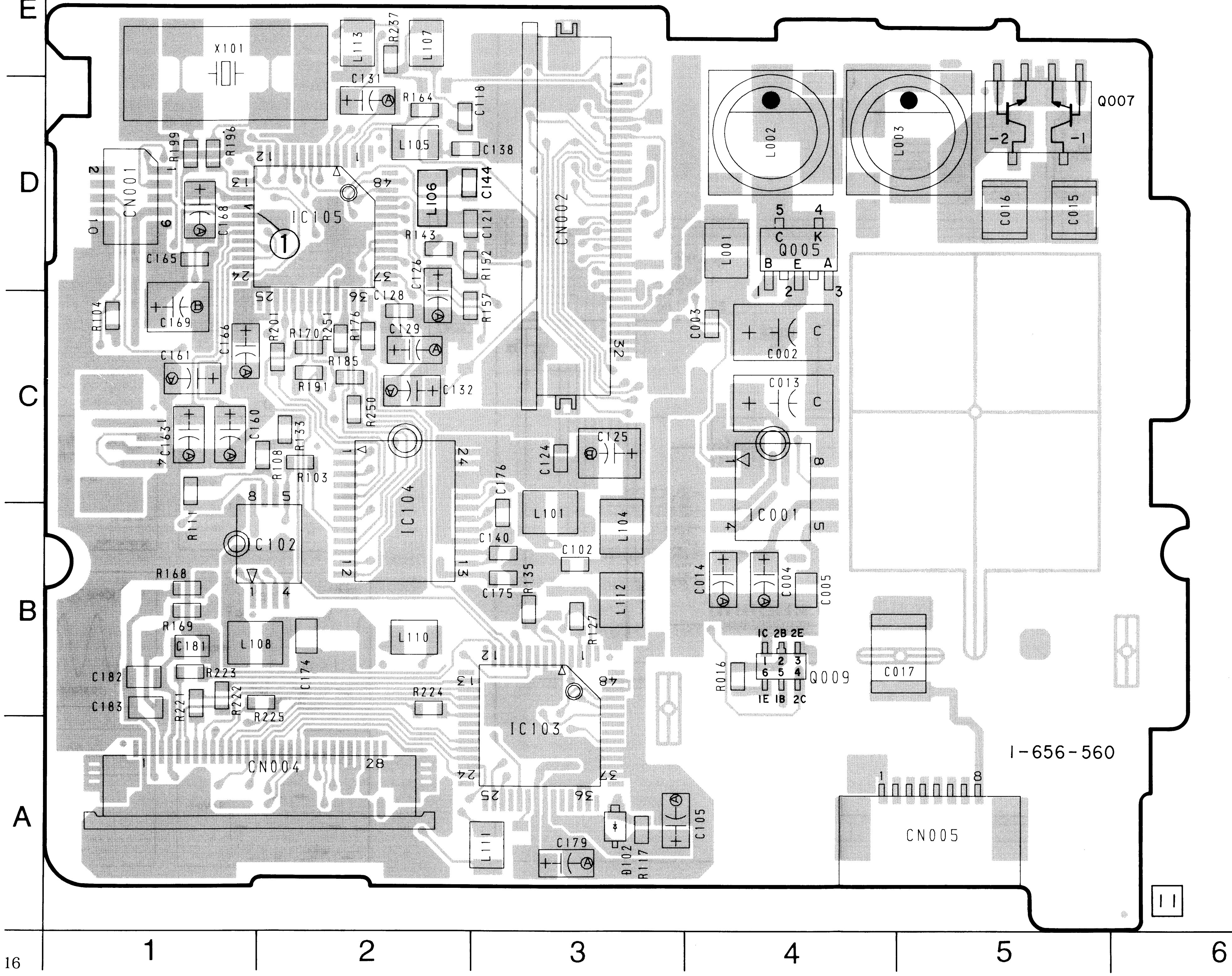
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡		
PB	⇨	⇨		



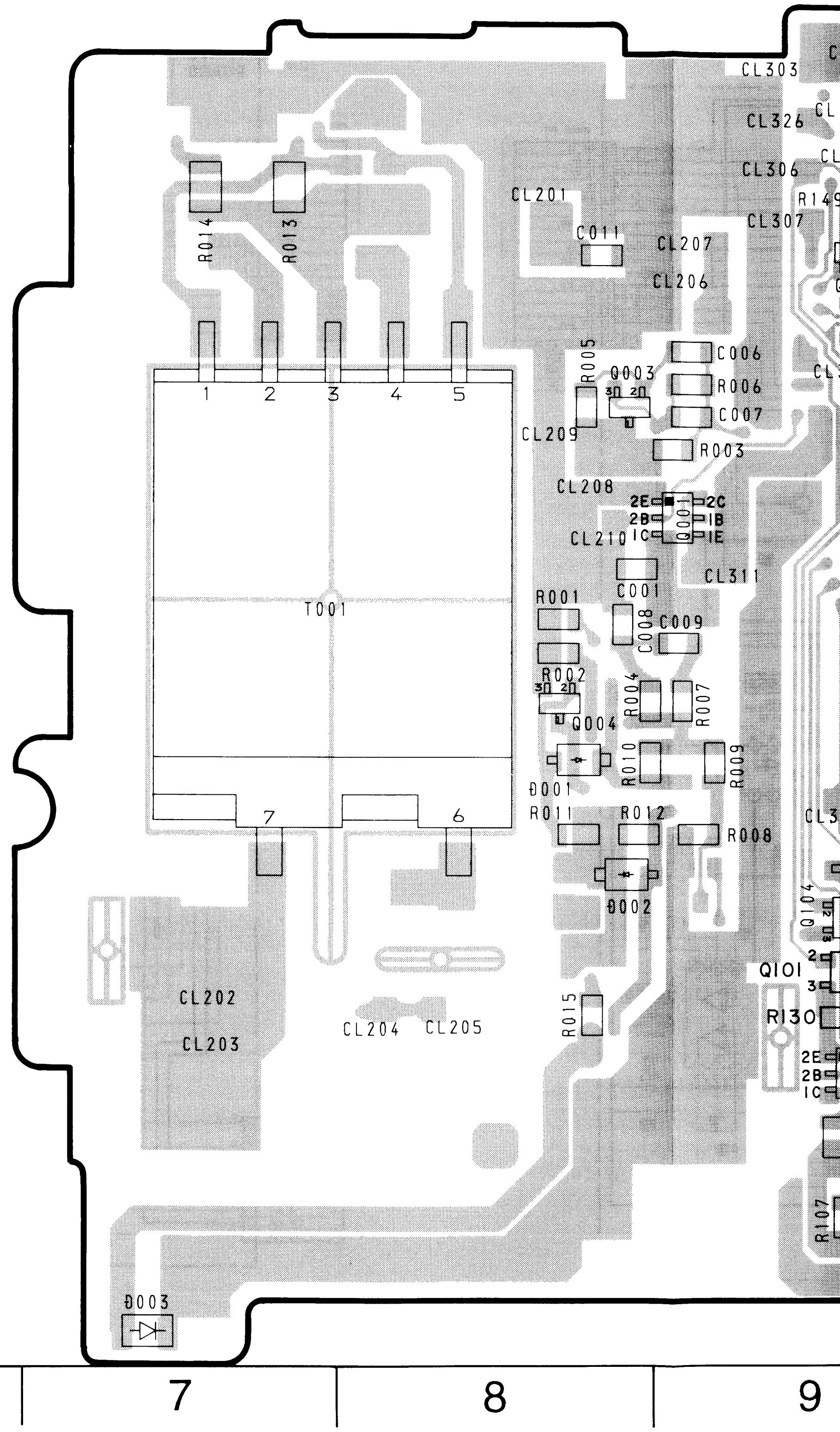
PD-61 (LCD) PRINTED WIRING BOARD

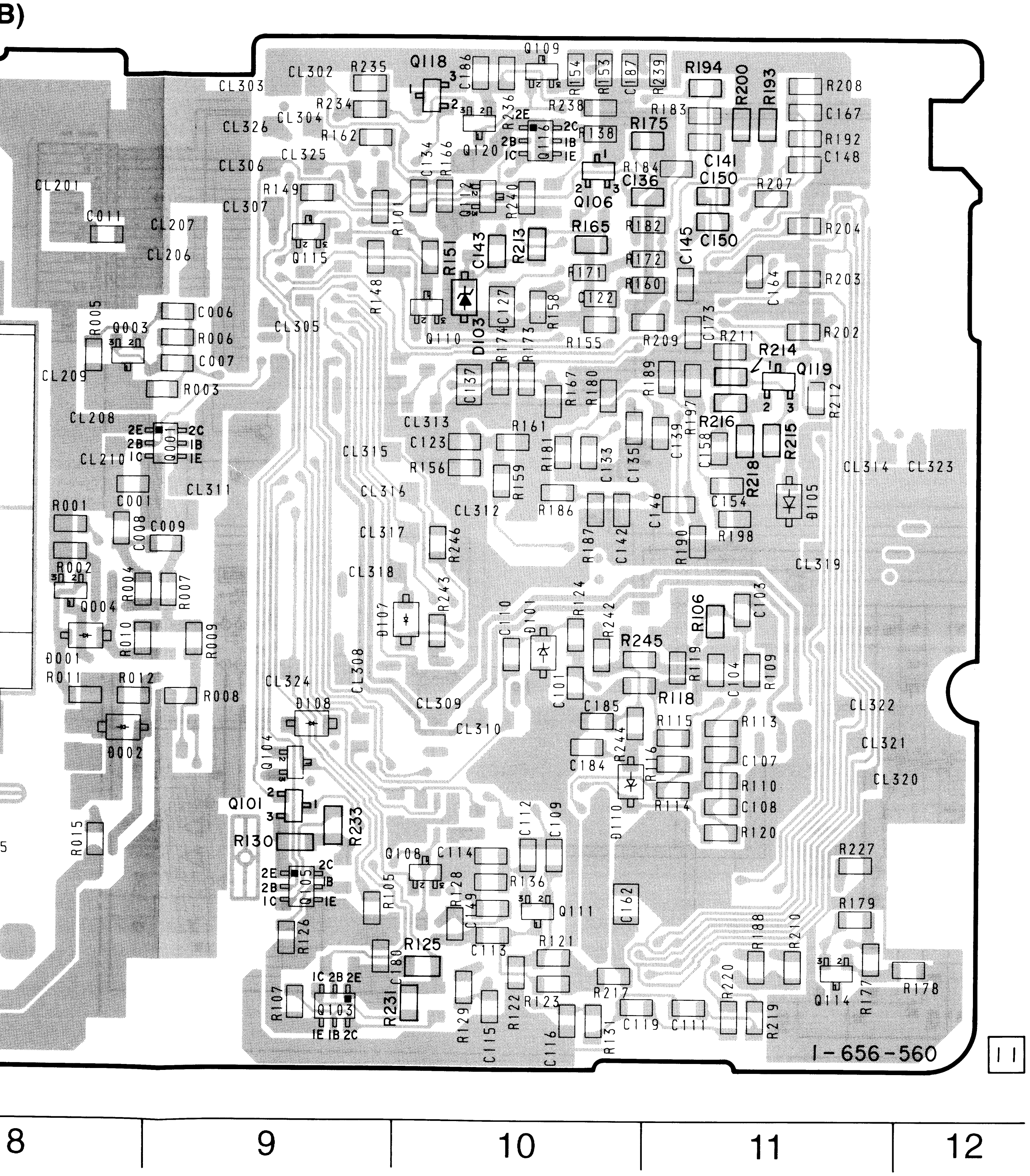
— Ref. No. : PD-61 Board; 5,000 Series —

PD-61 BOARD (SIDE A)


E
D
C
B
A
1
2
3
4
5
6
X101
L113
R237
L107
C131
R164
C118
L105
C138
R199
R196
CN001
IC105
L106
C144
R143
C121
R152
R157
C126
C128
CN002
C165
C168
C169
R104
C166
R201
R170
R251
R176
C129
R185
R191
C161
C132
R250
C163
C160
R133
R108
R103
IC104
C124
C125
C176
L101
L104
R111
IC102
C140
C102
R135
C175
L112
R168
R169
C181
L108
C174
L110
R127
C182
R223
C183
R221
R222
R225
R224
IC103
CN004
L111
C179
D102
R117
C105
L002
L003
Q007
L001
Q005
C003
C002
C013
IC001
C014
C004
C005
R016
Q009
C016
C015
C017
CN005
1-656-560
11

PD-61 BOARD (SIDE B)


7
8
9
CL303
CL326
CL306
CL307
R149
CL201
R014
R013
C011
CL207
CL206
R005
Q003
C006
R006
C007
R003
CL209
CL208
Q001
CL210
CL311
T001
R001
C001
C008
C009
R002
Q004
R004
R007
D001
R010
R009
R011
R012
R008
D002
Q101
R130
CL202
CL203
CL204
CL205
R015
R107
D003


B)
CL303
CL302
R235
Q118
C186
Q109
R154
R153
C187
R239
R194
R200
R193
R208
C167
R192
C148
CL326
R234
CL304
R162
R236
Q120
R238
R183
Q116
R138
R175
CL306
CL325
C134
R166
R184
C141
C136
Q106
C150
R207
CL201
R149
CL307
C011
CL207
R101
Q112
R240
R165
R182
C145
C150
R204
CL206
Q115
R151
C143
R213
R172
C164
R148
C127
R171
R160
R203
R005
Q003
C006
R006
C007
R003
CL209
CL305
Q110
D103
R174
R173
R158
C122
R155
R209
C173
R211
R214
Q119
R202
R212
C137
R167
R180
R189
CL208
Q001
CL210
CL313
C123
R161
R197
R216
R215
R156
R181
C133
C135
C139
C158
R218
CL315
CL314
CL323
C001
CL311
R001
CL316
R159
R186
C154
D105
C008
C009
CL312
CL317
R246
R187
C142
C146
R190
R198
R002
CL318
CL319
R004
R007
Q004
D107
R243
C110
D101
R124
R242
R106
C103
R010
R009
D001
R011
R012
R008
CL308
R245
R119
C104
R109
CL324
D108
CL309
C101
C185
R118
CL322
D002
CL310
Q104
R115
R113
R244
R116
CL321
C184
C107
CL320
R110
Q101
R114
C108
R233
R130
R120
C112
C109
D110
R015
Q108
C114
R227
Q105
R105
R128
R136
Q111
R179
C162
R126
R149
R188
R210
C113
R125
R121
C180
R231
Q103
R107
R129
R122
R123
R217
R220
R219
Q114
R177
R178
C115
C116
R131
C119
C111
1-656-560
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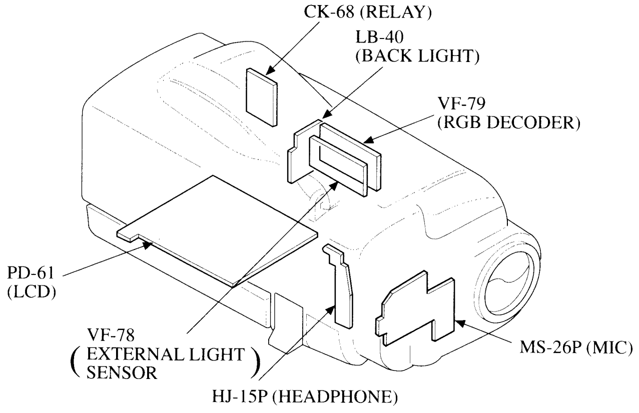
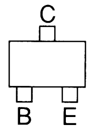
11
12

PD-61 BOARD

C001	C–8	C133	C–10	CN001	D–1	Q104	B–9	R116	B–11	R172	D–10	R218	C–11
C002	C–4	C134	D–10	CN002	D–3	Q105	A–9	R117	A–3	R173	D–10	R219	A–11
C003	C–4	C135	C–10	CN004	A–2	Q106	D–10	R118	B–10	R174	D–10	R220	A–11
C004	B–4	C136	D–10	CN005	A–5	Q108	B–10	R119	B–11	R175	D–10	R221	B–1
C005	B–4	C137	C–10			Q109	E–10	R120	B–11	R176	C–2	R222	B–1
C006	D–9	C138	D–3	D001	B–8	Q110	D–10	R121	A–10	R177	A–11	R223	B–1
C007	D–9	C139	C–11	D002	B–8	Q111	A–10	R122	A–10	R178	A–12	R224	B–2
C008	C–8	C140	B–3	D003	A–7	Q112	D–10	R123	A–10	R179	A–11	R225	B–2
C009	C–9	C141	D–11	D101	B–10	Q114	A–11	R124	C–10	R180	C–10	R227	B–11
C011	D–8	C142	C–10	D102	A–3	Q115	D–9	R125	A–10	R181	C–10	R231	A–10
C013	C–4	C143	D–10	D103	D–10	Q116	D–10	R126	A–9	R182	D–10	R233	B–9
C014	B–4	C144	D–2	D105	C–11	Q118	E–10	R127	B–3	R183	E–11	R234	E–9
C015	D–5	C145	D–11	D107	C–9	Q120	D–10	R128	A–10	R184	D–10	R235	E–9
C016	D–5	C146	C–11	D108	B–9			R129	A–10	R185	C–2	R236	E–10
C017	B–5	C148	D–11	D110	B–10	R001	C–8	R130	B–9	R186	C–10	R237	E–2
C101	B–10	C149	A–10			R002	C–8	R131	A–10	R187	C–10	R238	E–10
C102	B–3	C150	D–11	IC001	B–4	R003	C–9	R133	C–2	R188	A–11	R239	E–11
C103	C–11	C151	D–11	IC102	B–2	R004	C–8	R135	B–3	R189	C–11	R240	D–10
C104	B–11	C154	C–11	IC103	A–3	R005	D–8	R136	A–10	R190	C–11	R242	B–10
C105	A–4	C158	C–11	IC104	B–2	R006	D–9	R138	D–10	R191	C–2	R243	C–10
C107	B–11	C160	C–1	IC105	D–2	R007	C–9	R143	D–2	R192	D–11	R244	B–10
C108	B–11	C161	C–1	L001	D–4	R008	B–9	R148	D–9	R193	E–11	R245	B–10
C109	B–10	C162	A–10	L002	D–4	R009	B–9	R149	D–9	R194	E–11	R246	C–10
C110	B–10	C163	C–1	L003	D–5	R010	B–8	R151	D–10	R196	D–1	R250	C–2
C11	A–11	C164	D–11	L101	B–3	R011	B–8	R152	D–3	R197	C–11	R251	C–2
C112	B–10	C165	D–1	L104	B–3	R012	B–8	R153	E–10	R198	C–11		
C113	A–10	C166	C–1	L105	D–2	R013	D–7	R154	E–10	R199	D–1	T001	C–8
C114	B–10	C167	E–11	L106	D–2	R014	D–7	R155	D–10	R200	E–11		
C115	A–10	C168	D–1	L107	E–2	R015	B–8	R156	C–10	R201	C–2	X101	E–1
C116	A–10	C169	C–1	L108	B–1	R016	B–4	R157	C–3	R202	D–11		
C118	D–3	C173	D–11	L110	B–2	R101	D–9	R158	D–10	R203	D–11		
C119	A–10	C174	B–2	L111	A–3	R103	C–2	R159	C–10	R204	D–11		
C121	D–3	C175	B–3	L112	B–3	R104	C–1	R160	D–10	R207	D–11		
C122	D–10	C176	C–3	L113	E–2	R105	A–9	R161	C–10	R208	E–11		
C123	C–10	C179	A–3			R106	B–11	R162	D–9	R209	D–11		
C124	C–3	C180	A–10	Q001	C–9	R107	A–9	R164	D–2	R210	A–11		
C125	C–3	C181	B–1	Q003	D–8	R108	C–2	R165	D–10	R211	D–11		
C126	D–2	C182	B–1	Q004	C–8	R109	B–11	R166	D–10	R212	C–11		
C127	D–10	C183	B–1	Q005	D–4	R110	B–11	R167	C–10	R213	D–10		
C128	C–2	C184	B–10	Q007	D–5	R111	B–1	R168	B–1	R214	C–11		
C129	C–2	C185	B–10	Q009	B–4	R113	B–11	R169	B–1	R215	C–11		
C131	E–1	C186	E–10	Q101	B–9	R114	B–11	R170	C–2	R216	C–11		
C132	C–2	C187	E–10	Q103	A–9	R115	B–11	R171	D–10	R217	A–10		


CK-68 (RELAY)
LB-40
(BACK LIGHT)
VF-79
(RGB DECODER)
PD-61
(LCD)
VF-78
(EXTERNAL LIGHT
SENSOR)
MS-26P (MIC)
HJ-15P (HEADPHONE)

- Chip parts (3-terminal transistor)

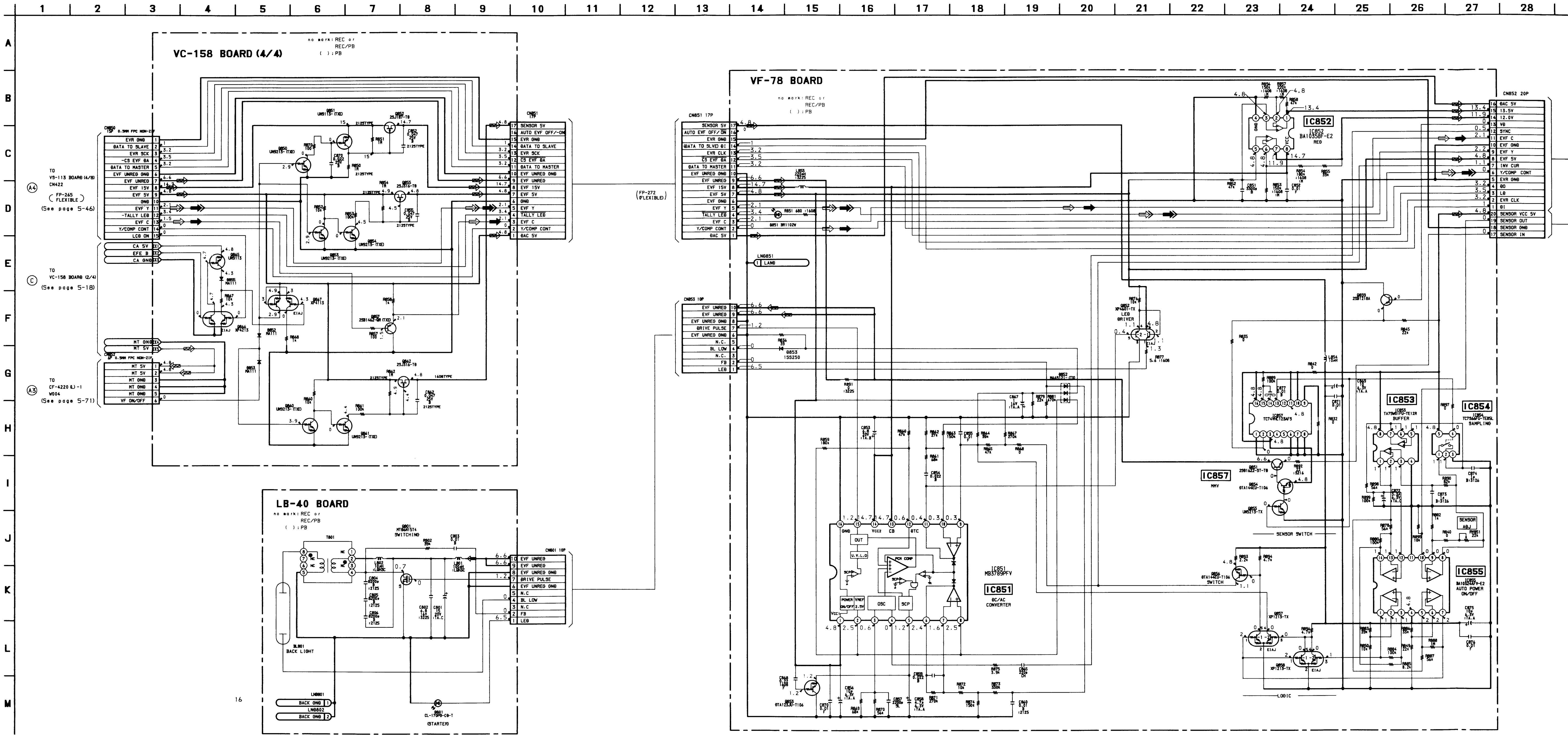


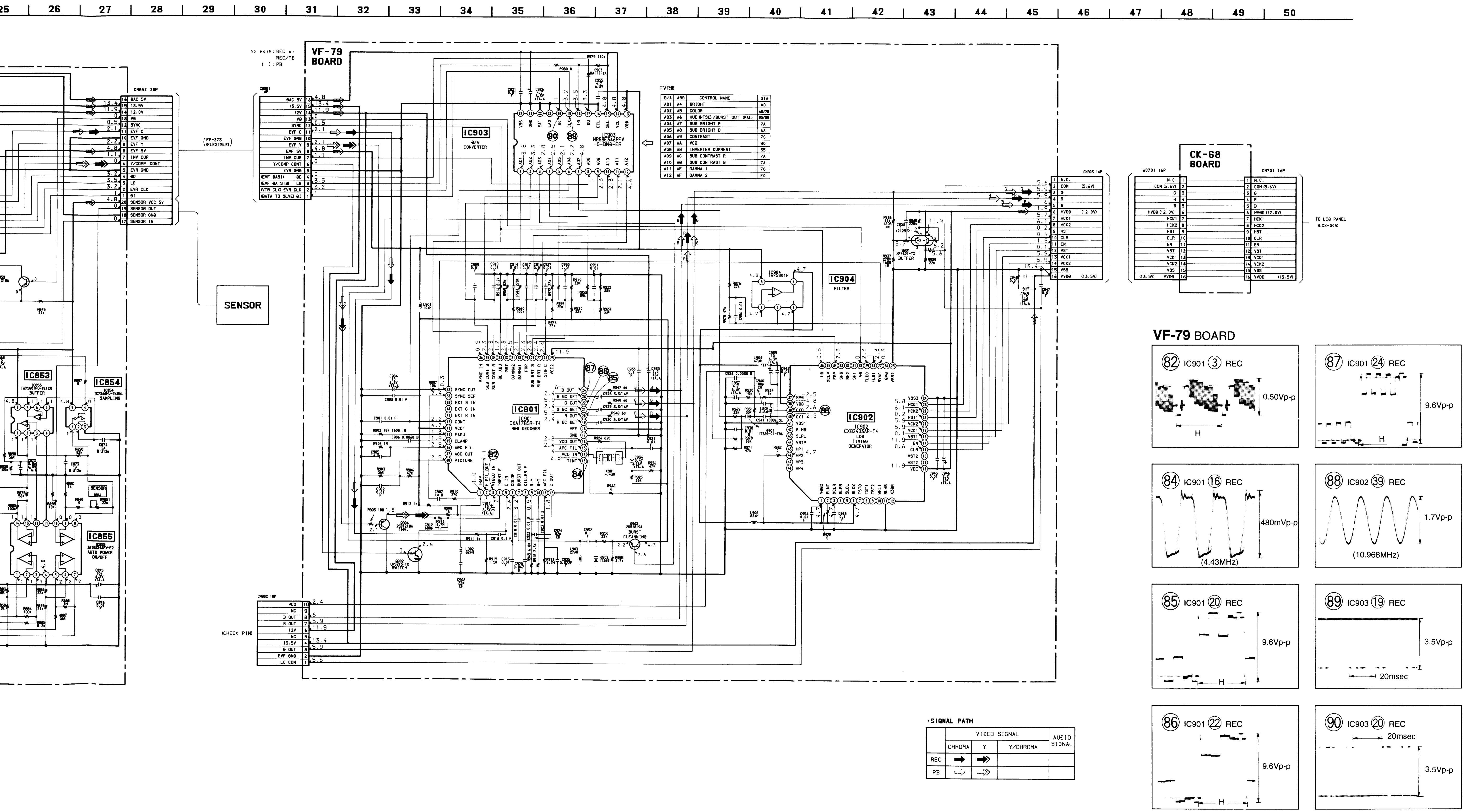
C: Collector
B: Base
E: Emitter

VF-78 (EXTERNAL LIGHT SENSOR), VF-79 (RGB DECODER), LB-40 (BACK LIGHT), CK-68 (RELAY) SCHEMATIC DIAGRAMS

— Ref. No. : VF-78 Board, VF-79 Board, LB-40 Board and CK-68 Board; 3,000 Series —

• Refer to page 5-9 for printed wiring board on VC-158 board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
A B C D E F G H I J K L M
VC-158 BOARD (4/4)
no mark: REC or REC/PB
( ): PB
CN850 15P 0.5MM FPC NON-ZIF
1 EVR GND
2 DATA TO SLAVE
3 EVR SCK
4 -CS EVF DA
5 DATA TO MASTER
6 EVF UNREG GND
7 EVF UNREG
8 EVF 15V
9 EVF 5V
10 GND
11 EVF Y
12 -TALLY LED
13 EVF C
14 Y/COMP CONT
15 LCD ON
TO VS-113 BOARD (4/8) CN422
(FP-265 FLEXIBLE)
(See page 5-46)
A4
CK1 CA 5V
CK2 EFE B
CK3 CA GND
TO VC-158 BOARD (2/4)
(See page 5-18)
C
CK4 MT GND
CK5 MT 5V
CN852 6P 0.5MM FPC NON-ZIF
1 MT 5V
2 MT 5V
3 MT GND
4 MT GND
5 MT GND
6 VF ON/OFF
TO CF-4220(L)-1 W004
(See page 5-71)
A3
Q851 UN9113-(TX)
Q852 2SJ187-TB
Q850 UN9213-(TX)
Q853 UN9213-(TX)
Q854 UN9213-(TX)
Q855 2SJ316-TB
Q857 2SB1462-QR(TX)
Q860 UN9213-(TX)
Q861 UN9213-(TX)
Q862 2SJ316-TB
Q865 UN9113
Q866 XP4213
Q867 XP4113
D852 MA111
D853 MA111
D855 MA111
CN851 17P
17 SENSOR 5V
16 AUTO EVF OFF/-ON
15 EVR GND
14 DATA TO SLAVE
13 EVR SCK
12 CS EVF DA
11 DATA TO MASTER
10 EVF UNREG GND
9 EVF UNREG
8 EVF 15V
7 EVF 5V
6 GND
5 EVF Y
4 TALLY LED
3 EVF C
2 Y/COMP CONT
1 DAC 5V
(FP-272 FLEXIBLE)
LB-40 BOARD
no mark: REC or REC/PB
( ): PB
T801
Q801 MTD6N15T4 SWITCHING
BL801 BACK LIGHT
LND801 BACK GND
LND802 BACK GND
D801 CL-170PG-CD-T (STARTER)
CN801 10P
10 EVF UNREG
9 EVF UNREG
8 EVF UNREG GND
7 DRIVE PULSE
6 EVF UNREG GND
5 N.C
4 BL LOW
3 N.C
2 FB
1 LED
16
VF-78 BOARD
no mark: REC or REC/PB
( ): PB
CN851 17P
17 SENSOR 5V
16 AUTO EVF OFF/ON
15 EVR GND
14 (DATA TO SLVE) DI
13 EVR CLK
12 CS EVF DA
11 DATA TO MASTER
10 EVF UNREG GND
9 EVF UNREG
8 EVF 15V
7 EVF 5V
6 EVF GND
5 EVF Y
4 TALLY LED
3 EVF C
2 Y/COMP CONT
1 DAC 5V
LND851 1 LAND
D851 BR1102W
D853 1SS250
CN853 10P
10 EVF UNREG
9 EVF UNREG
8 EVF UNREG GND
7 DRIVE PULSE
6 EVF UNREG GND
5 N.C.
4 BL LOW
3 N.C.
2 FB
1 LED
IC851 MB3789PFV
IC851
DC/AC CONVERTER
GND Vcc2 CB DTC OUT U.V.L.O PCM COMP SCP POWER ON/OFF VREF 2.5V OSC SCP Vcc1
IC852
IC852 BA10358F-E2
RED
IC853
BUFFER
IC854
SAMPLING
IC855
IC855 BA10324AF-E2
AUTO POWER ON/OFF
IC857
MHV
LED DRIVER
SENSOR SWITCH
SENSOR ADJ
LOGIC
CN852 20P
16 DAC 5V
15 13.5V
14 12.0V
13 VD
12 SYNC
11 EVF C
10 EVF GND
9 EVF Y
8 EVF 5V
7 INV CUR
6 Y/COMP CONT
5 EVR GND
4 DO
3 LD
2 EVR CLK
1 DI
20 SENSOR VCC 5V
19 SENSOR OUT
18 SENSOR GND
17 SENSOR IN


25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
no mark: REC or REC/PB
( ): PB
VF-79 BOARD
CN852 20P
(FP-273 (FLEXIBLE))
CN901 18P
IC903 D/A CONVERTER
IC903 MB88E346PFV -0-BND-ER
IC901 CXA1785R-T4 RGB DECODER
IC902 CXD2405AR-T4 LCD TIMING GENERATOR
IC904 TA75S01F FILTER
IC853 TA75W01FU(TE12R) BUFFER
IC854 TC7S66FU-TE85L SAMPLING
IC855 BA10324AFV-E2 AUTO POWER ON/OFF
SENSOR
SENSOR ADJ
CN903 16P
CK-68 BOARD
W0701 16P
CN701 16P
TO LCD PANEL (LCX-005)
CN902 10P
(CHECK PIN)
Q901 XP4401-TX BUFFER
Q902 UN5217-TX SWITCH
Q903 2SB1219A BURST CLEANNING
Q904 2SC4116 INV.

EVR表

D/A	ADD	CONTROL NAME	STA
A01	A4	BRIGHT	A0
A02	A5	COLOR	AE/75
A03	A6	HUE (NTSC) /BURST OUT (PAL)	95/50
A04	A7	SUB BRIGHT R	7A
A05	A8	SUB BRIGHT B	6A
A06	A9	CONTRAST	70
A07	AA	VCO	90
A08	AB	INVERTER CURRENT	35
A09	AC	SUB CONTRAST R	7A
A10	AD	SUB CONTRAST B	7A
A11	AE	GAMMA 1	70
A12	AF	GAMMA 2	F0

-SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛		
PB	⇨	⇨		

VF-79 BOARD

㉜ IC901 ③ REC
0.50Vp-p
H

(87) IC901 ㉔ REC
9.6Vp-p
H

(84) IC901 ⑯ REC
480mVp-p
(4.43MHz)

(88) IC902 ㊴ REC
1.7Vp-p
(10.968MHz)

(85) IC901 ⑳ REC
9.6Vp-p
H

(89) IC903 ⑲ REC
3.5Vp-p
20msec

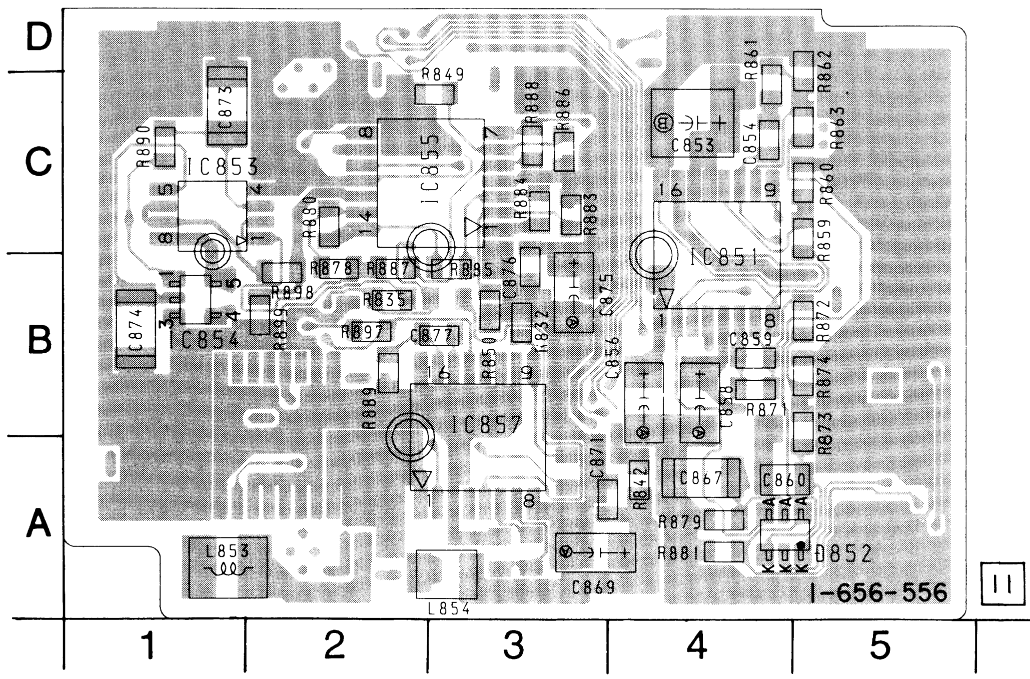
(86) IC901 ㉒ REC
9.6Vp-p
H

(90) IC903 ⑳ REC
20msec
3.5Vp-p

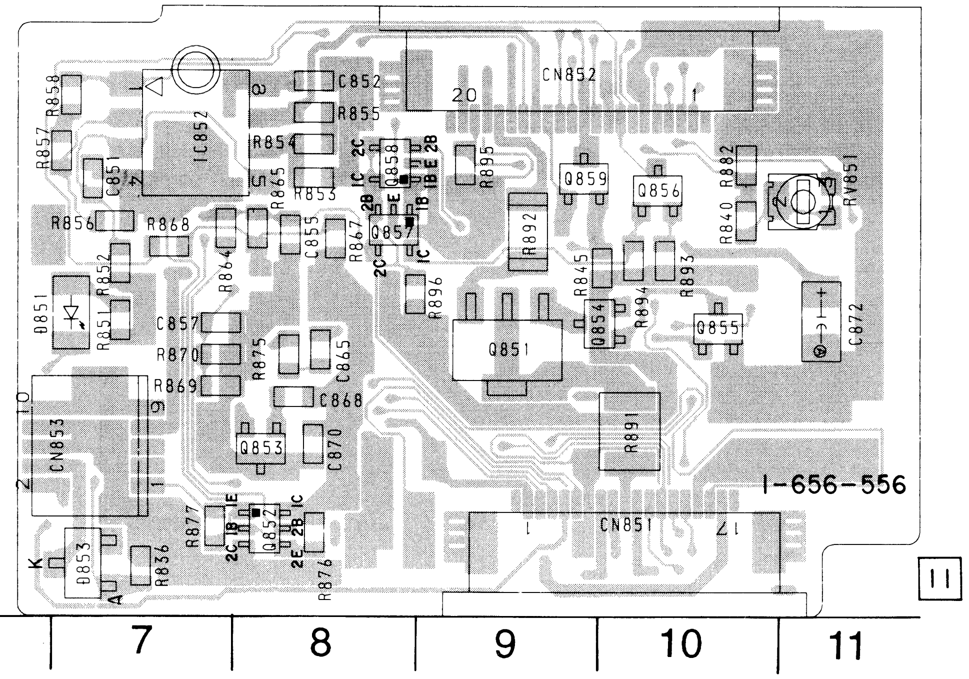
VF-78 (EXTERNAL LIGHT SENSOR), VF-79 (RGB DECODER), LB-40 (BACK LIGHT), CK-68 (RELAY), VC-158 (EVF ON/OFF) PRINTED WIRING BOARDS

— Ref. No. : VF-78 Board, VF-79 Board, LB-40 Board and CK-68 Board; 3,000 Series, VC-158 Board; 2,000 Series —

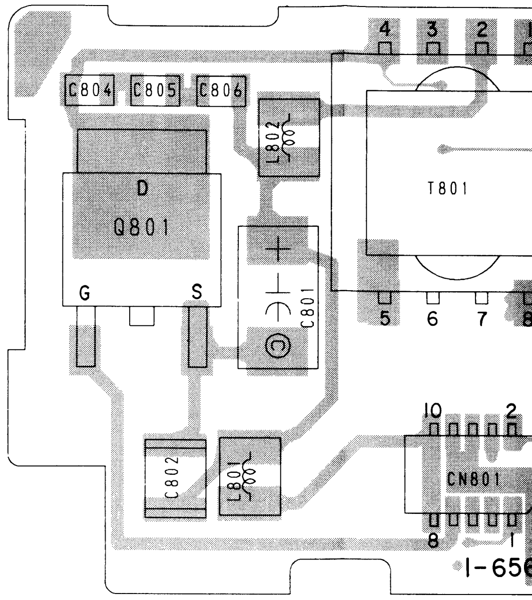
VF-78 BOARD (SIDE A)


D
C
B
A
1
2
3
4
5
IC853
IC854
IC855
IC851
IC857
C873
C874
C853
C854
C875
C876
C877
C856
C858
C859
C860
C867
C869
C871
R849
R888
R886
R890
R861
R862
R863
R860
R859
R872
R874
R873
R871
R884
R883
R880
R878
R887
R895
R898
R835
R897
R899
R850
R832
R889
R842
R879
R881
L853
L854
D852
1-656-556
11

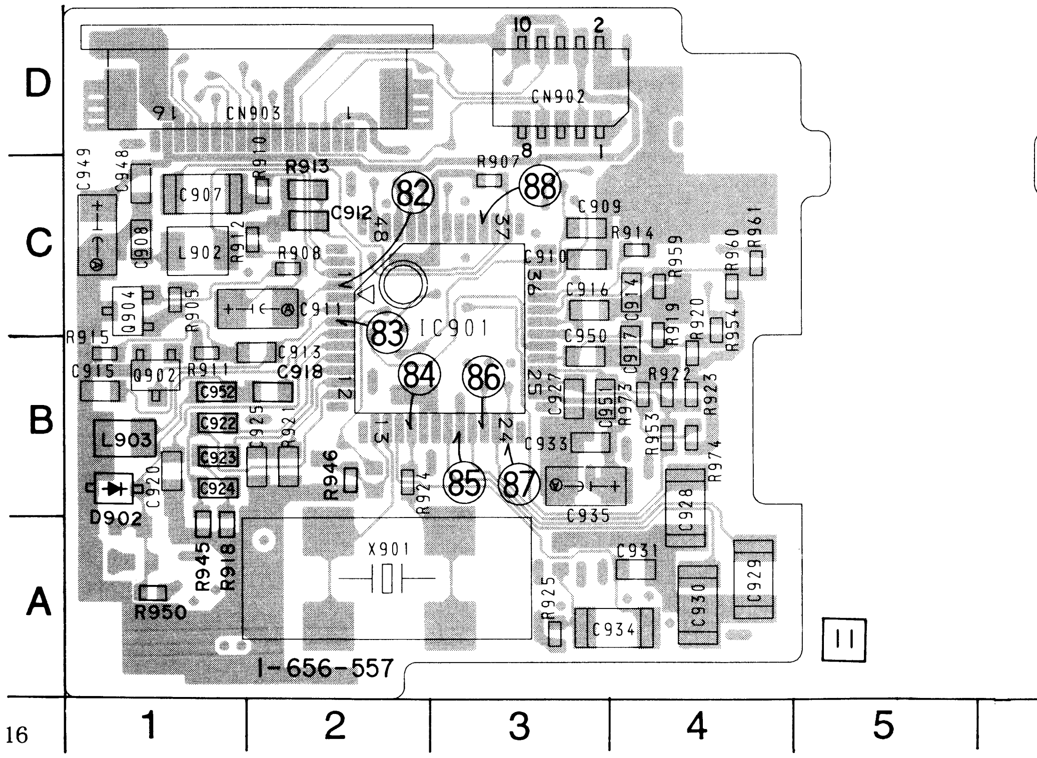
VF-78 BOARD (SIDE B)


6
7
8
9
10
11
IC852
CN852
CN853
CN851
C852
C851
C855
C857
C865
C868
C870
C872
R858
R857
R855
R854
R853
R865
R856
R868
R864
R867
R852
R851
R870
R869
R875
R895
R892
R896
R845
R894
R893
R840
R882
R877
R876
R836
R891
RV851
Q858
Q857
Q859
Q856
Q851
Q854
Q855
Q853
Q852
D851
D853
1-656-556
11

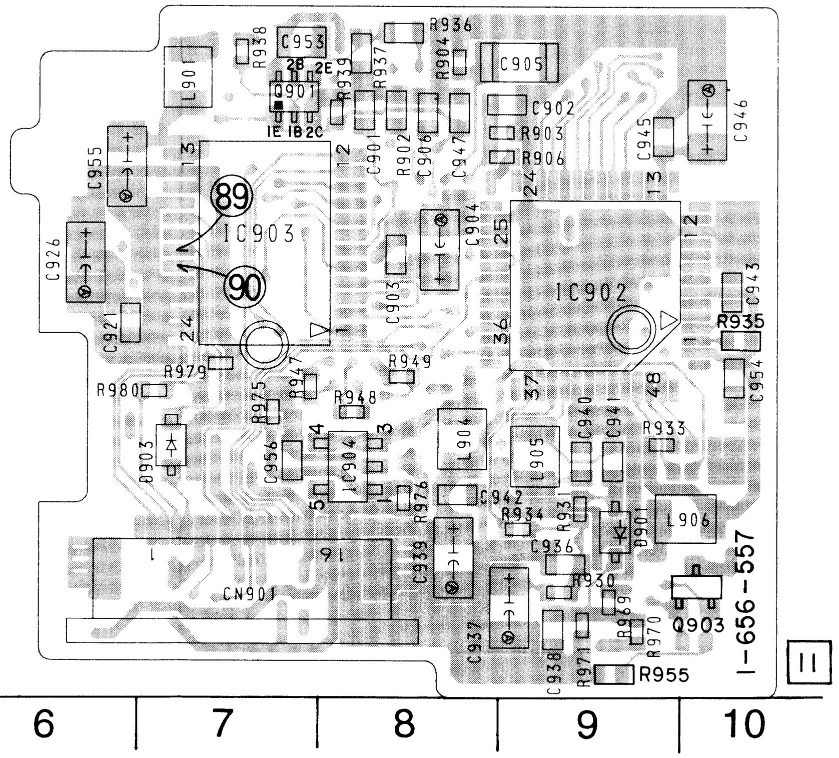
LB-40 BOARD (SIDE A)


C804
C805
C806
C801
C802
L802
L801
Q801
D
G
S
T801
CN801
1-656

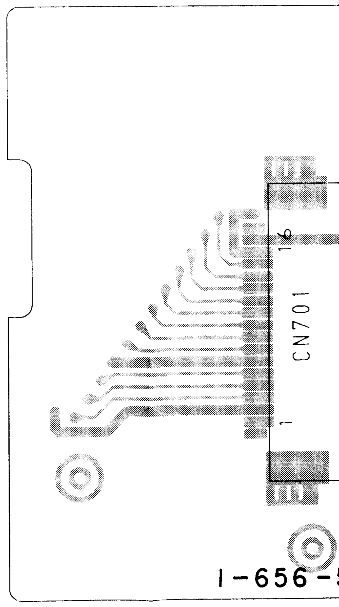
VF-79 BOARD (SIDE A)


D
C
B
A
1
2
3
4
5
CN903
CN902
IC901
X901
C949
C948
C907
C912
C911
C913
C918
C915
C920
C909
C910
C916
C950
C927
C933
C935
C931
C930
C929
C934
C928
R913
R912
R908
R905
R915
R911
R907
R914
R959
R960
R961
R919
R920
R954
R922
R923
R953
R974
R973
R946
R924
R925
R945
R918
R950
Q908
Q904
Q902
L902
L903
D902
82
83
84
85
86
87
88
1-656-557
11

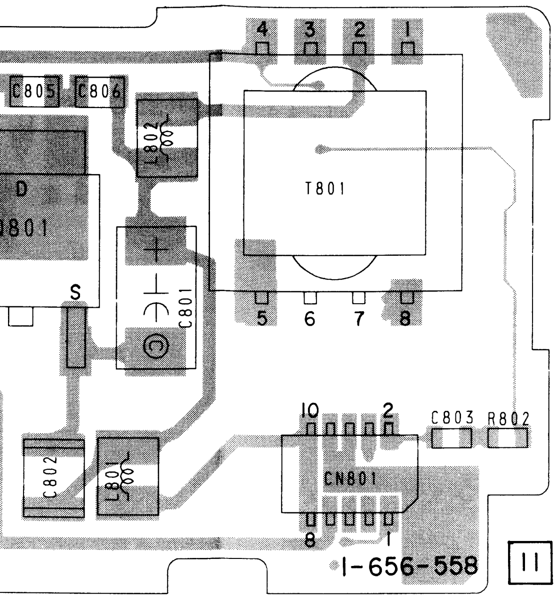
VF-79 BOARD (SIDE B)


6
7
8
9
10
CN901
IC903
IC902
IC904
C953
C955
C926
C921
C905
C902
C945
C946
C943
C954
C904
C903
C901
C906
C947
C956
C942
C940
C941
C936
C939
C937
C938
R936
R938
R933
R937
R904
R903
R906
R902
R935
R979
R980
R975
R947
R948
R949
R976
R934
R931
R930
R969
R970
R971
R955
Q901
Q903
L901
L904
L905
L906
D903
D901
89
90
1-656-557
11

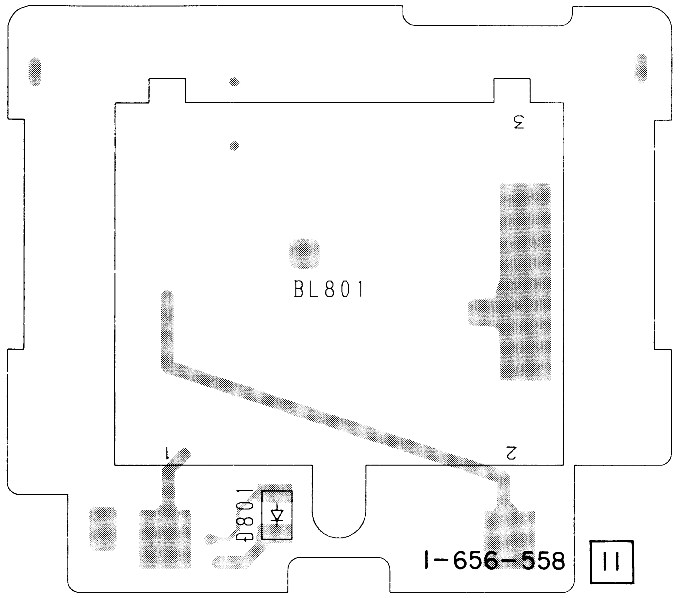
CK-68 BOARD (SIDE



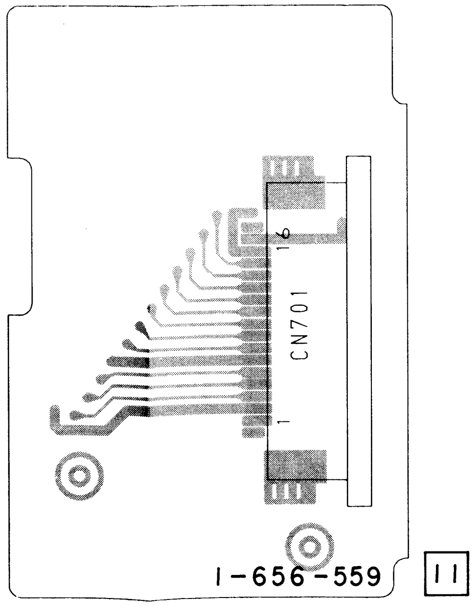
BOARD (SIDE A)


4
3
2
1
C805
C806
L802
T801
D
801
S
C801
5
6
7
8
10
2
C803
R802
C802
L801
CN801
8
1
1-656-558
11

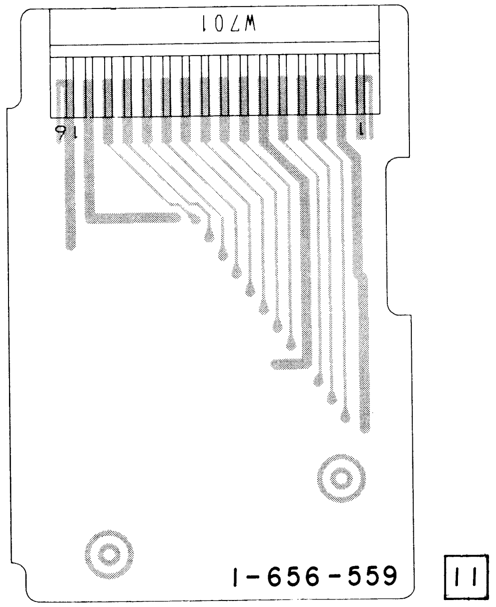
LB-40 BOARD (SIDE B)


3
BL801
1
2
D801
1-656-558
11

CK-68 BOARD (SIDE A)


16
CN701
1
1-656-559
11

CK-68 BOARD (SIDE B)

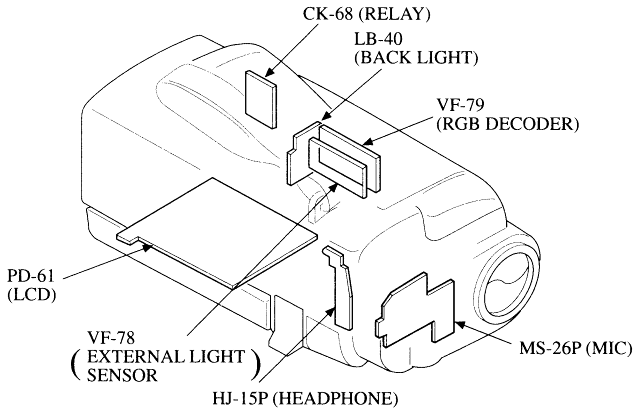

W701
16
1
1-656-559
11

VF-78 BOARD

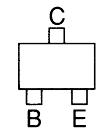
C851	C-7	Q855	B-10	R884	C-3
C852	C-8	Q856	C-10	R885	B-3
C853	C-4	Q857	C-8	R886	C-3
C854	C-4	Q858	C-8	R887	B-2
C855	C-8	Q859	C-9	R888	C-3
C856	B-4	R832	B-3	R889	B-2
C857	B-7	R835	B-2	R890	C-1
C858	B-4	R836	A-7	R891	A-10
C859	B-4	R840	C-10	R892	C-9
C860	A-4	R842	A-4	R893	B-10
C865	B-8	R845	B-10	R894	B-10
C867	A-4	R849	C-3	R895	C-9
C868	B-8	R850	B-3	R896	B-9
C869	A-6	R851	B-7	R897	B-2
C870	A-8	R852	B-7	R898	B-2
C871	A-3	R853	C-8	R899	B-2
C872	B-11	R854	C-8		
C873	C-1	R855	C-8	RV851	C-11
C874	B-1	R856	C-7		
C875	B-3	R857	C-7		
C876	B-3	R858	C-7		
C877	B-3	R859	C-5		
		R860	C-5		
CN851	A-10	R861	C-4		
CN852	C-9	R862	C-5		
CN853	A-7	R863	C-5		
		R864	C-7		
D851	B-7	R865	C-8		
D852	A-4	R867	C-8		
D853	A-7	R868	B-7		
		R869	B-7		
IC851	B-4	R870	B-7		
IC852	C-7	R871	B-4		
IC853	C-1	R872	B-5		
IC854	B-1	R873	B-5		
IC855	C-3	R874	B-5		
IC857	B-3	R875	B-8		
		R876	A-8		
L853	A-1	R877	A-7		
L854	A-3	R878	B-2		
		R879	A-4		
Q851	B-9	R880	C-2		
Q852	A-8	R881	A-4		
Q853	A-8	R882	C-10		
Q854	B-10	R883	C-3		

VF-79 BOARD

C901	D-8	C949	C-1	R915	B-1
C902	D-9	C950	B-3	R919	C-4
C903	C-8	C951	B-3	R920	B-4
C904	C-8	C952	B-1	R921	B-2
C905	D-9	C953	D-7	R922	B-4
C906	D-8	C954	B-10	R923	B-4
C907	C-1	C955	C-6	R924	B-2
C908	C-7	C956	B-7	R925	A-3
C909	C-3			R926	A-3
C910	C-3	CN901	A-7	R930	A-9
C911	C-2	CN902	D-3	R931	B-9
C912	C-2	CN903	D-2	R933	B-9
C913	B-2			R934	A-9
C914	C-4	D901	A-9	R935	B-10
C915	B-1	D903	B-7	R936	D-8
C916	C-3			R937	D-8
C917	B-4	IC901	C-3	R938	D-7
C918	A-1	IC902	C-9	R939	D-8
C920	B-1	IC903	C-7	R945	A-1
C921	C-6	IC904	B-8	R946	B-2
C922	B-1			R947	B-7
C923	B-1	L901	D-7	R948	B-8
C924	B-1	L902	C-1	R949	B-8
C925	B-2	L903	B-1	R950	A-1
C926	C-6	L904	B-8	R953	B-4
C927	B-3	L905	B-9	R954	C-4
C928	B-4	L906	A-10	R955	A-9
C929	A-4			R959	C-4
C930	A-4	Q901	D-7	R960	C-4
C931	A-4	Q902	B-1	R961	C-4
C933	B-4	Q903	A-10	R969	A-9
C934	A-3	Q904	C-1	R970	A-9
C935	B-9			R971	A-9
C936	A-8	R902	D-8	R973	B-4
C937	A-8	R903	D-9	R974	B-4
C938	A-9	R904	D-8	R975	B-7
C939	A-8	R905	C-1	R976	B-9
C940	B-9	R906	C-9	R979	B-7
C941	B-9	R907	C-3	R980	B-7
C942	B-8	R908	C-2		
C943	C-10	R910	C-2	X901	A-2
C945	D-9	R911	B-1		
C946	D-10	R912	C-2		
C947	D-8	R913	C-2		
C948	C-1	R914	C-4		


CK-68 (RELAY)
LB-40
(BACK LIGHT)
VF-79
(RGB DECODER)
PD-61
(LCD)
VF-78
(EXTERNAL LIGHT SENSOR)
MS-26P (MIC)
HJ-15P (HEADPHONE)

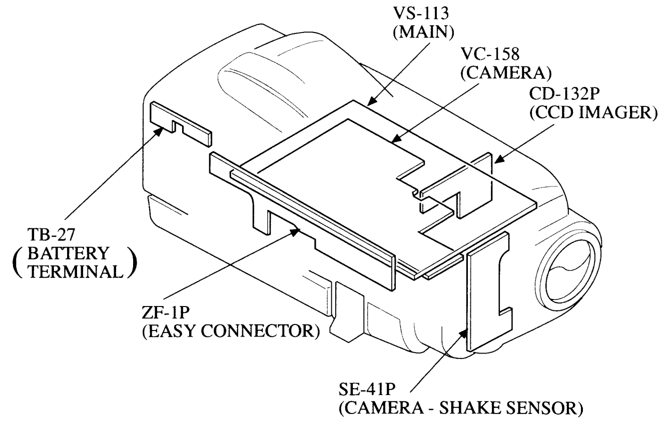
- Chip parts (3-terminal transistor)



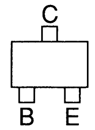
C: Collector
B: Base
E: Emitter

ZF-1P BOARD

C101	A-5
C190	B-7
C191	B-7
C192	B-7
C193	B-7
CN102	F-10
CN103	B-1
CN104	E-3
CN190	E-7
CN191	A-7
D101	B-4
D102	F-5
D103	A-5
D105	A-6
D106	A-6
D108	B-4
D109	F-2
D110	F-2
D111	F-3
D112	A-3
D116	A-10
D117	A-10
D118	A-10
D119	A-10
D120	B-3
D125	F-4
D190	F-3
F190	F-7
F191	F-7
F192	F-7
F193	F-8
IC101	A-5
L101	B-3
L102	B-3
L103	B-4
Q101	A-4
Q102	A-4
Q103	A-3
Q104	A-3
Q105	A-3
Q106	B-3
Q108	B-4
Q109	A-4
Q110	B-4
Q111	F-6
Q112	F-6
Q115	A-5
Q120	B-4
Q121	A-3
Q190	B-7
Q191	A-7
R101	A-4
R102	A-4
R103	A-4
R104	A-4
R105	A-3
R106	A-3
R107	A-3
R108	A-3
R109	A-3
R110	A-3
R111	A-3
R112	A-3
R114	A-4
R115	A-4
R116	A-4
R117	B-4
R119	A-4
R120	A-6
R126	F-5
R128	A-6
R129	A-6
R130	A-6
R131	A-6
R132	A-5
R133	A-5
R134	A-5
R135	B-5
R136	A-5
R137	A-5
R142	B-3
R143	B-4
R144	A-3
R145	B-4
R146	B-3
R190	A-7
R191	F-9


VS-113
(MAIN)
VC-158
(CAMERA)
CD-132P
(CCD IMAGER)
TB-27
(BATTERY TERMINAL)
ZF-1P
(EASY CONNECTOR)
SE-41P
(CAMERA - SHAKE SENSOR)

- Chip parts (3-terminal transistor)

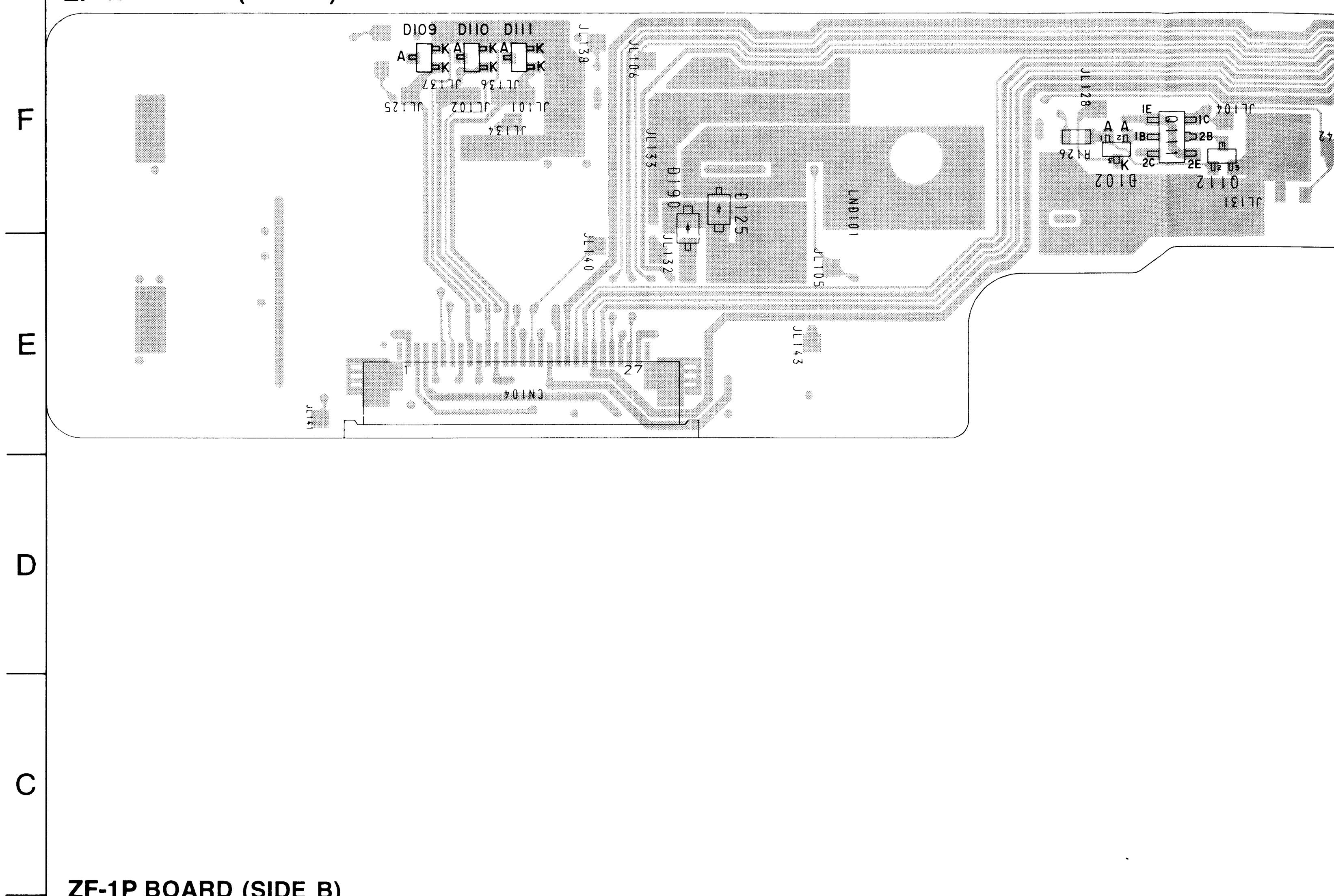


C: Collector
B: Base
E: Emitter

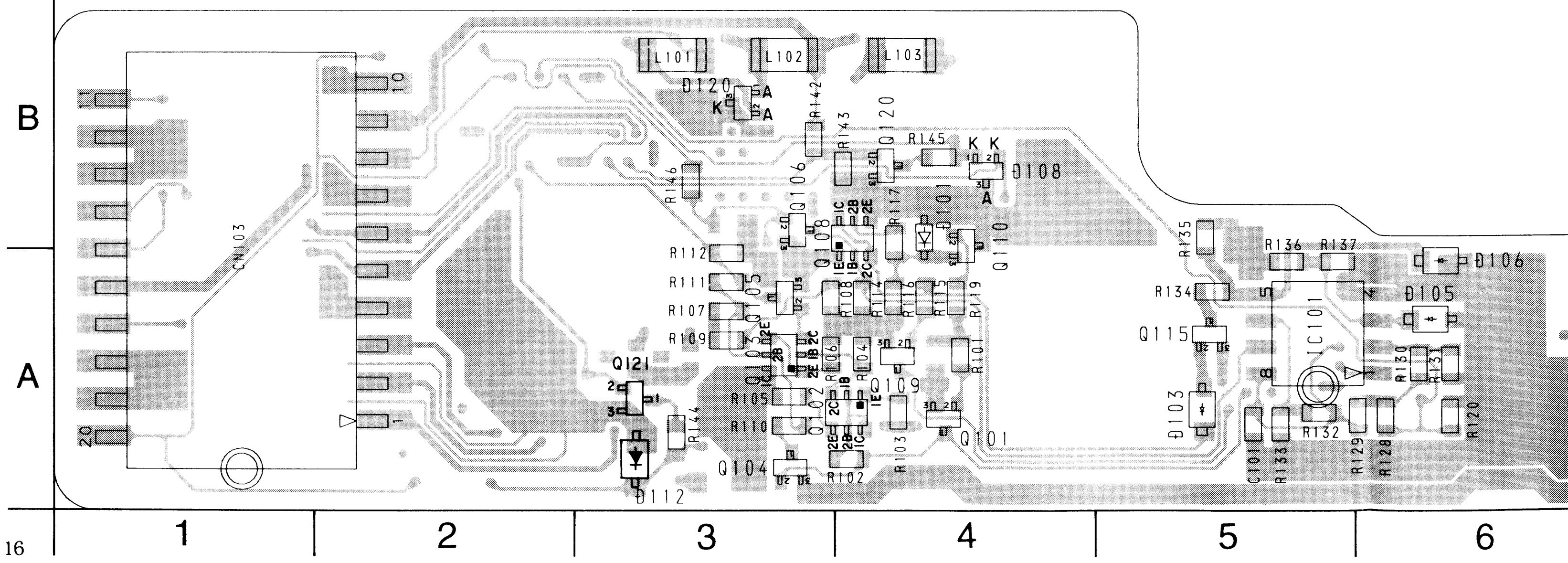
ZF-1P (EASY CONNECTOR), TB-27 (BATTERY TERMINAL) PRITED WIRING BOARDS

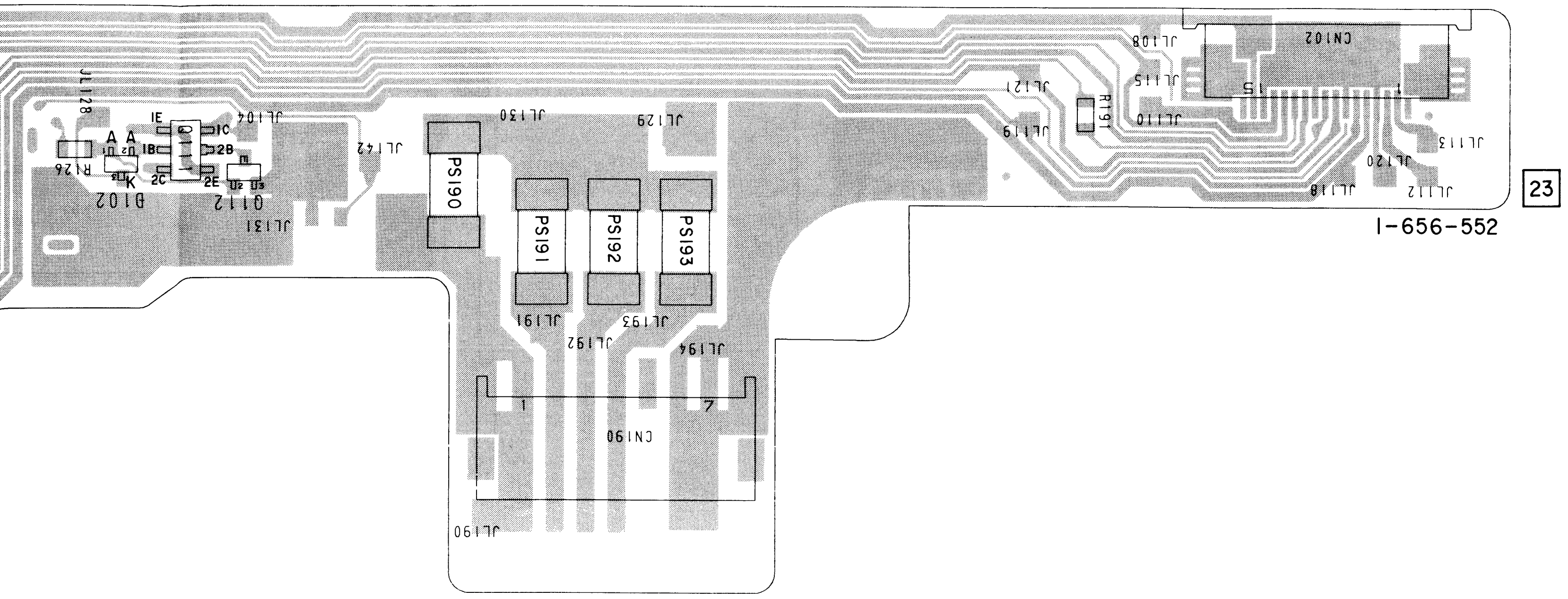
— Ref. No. : ZF-1 Board and TB-27 Board; 1,000 Series —

ZF-1P BOARD (SIDE A)

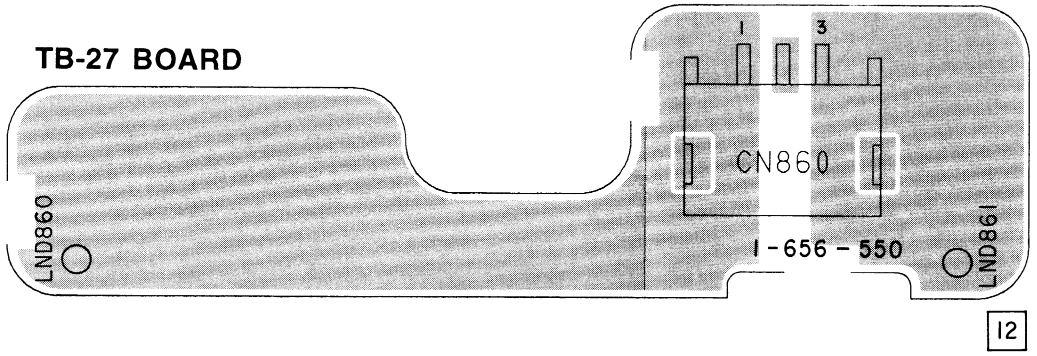

F
E
D
C
D109
D110
D111
A
K
JL138
JL106
JL137
JL136
JL135
JL125
JL102
JL101
JL134
JL128
JL104
JL133
JL131
D190
D125
JL132
JL140
JL105
LND101
JL143
CN104
1
27
R126
D102
Q111
Q112
IE
IC
IB
2B
2C
2E

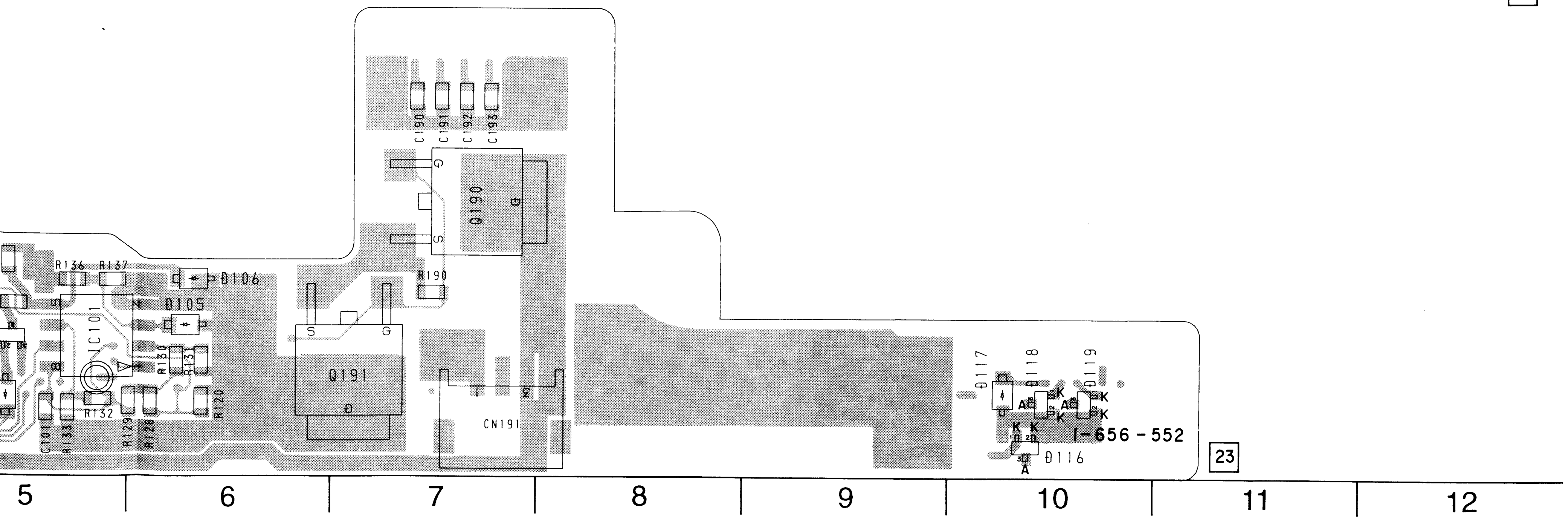
ZF-1P BOARD (SIDE B)


B
A
1
2
3
4
5
6
16
CN103
11
20
10
1
L101
L102
L103
D120
R142
R143
Q120
R145
D108
R146
Q106
R117
D101
Q108
Q110
R112
R111
R107
R109
Q105
Q103
R108
R114
R116
R115
R119
R106
R104
R105
R110
Q102
Q109
Q121
R144
D112
Q104
R103
R102
Q101
R101
R135
R134
Q115
R136
R137
D106
D105
IC101
D103
C101
R133
R132
R129
R128
R130
R131
R120


CN102
PS190
PS191
PS192
PS193
CN190
Q102
Q112
R126
R191
1-656-552
23

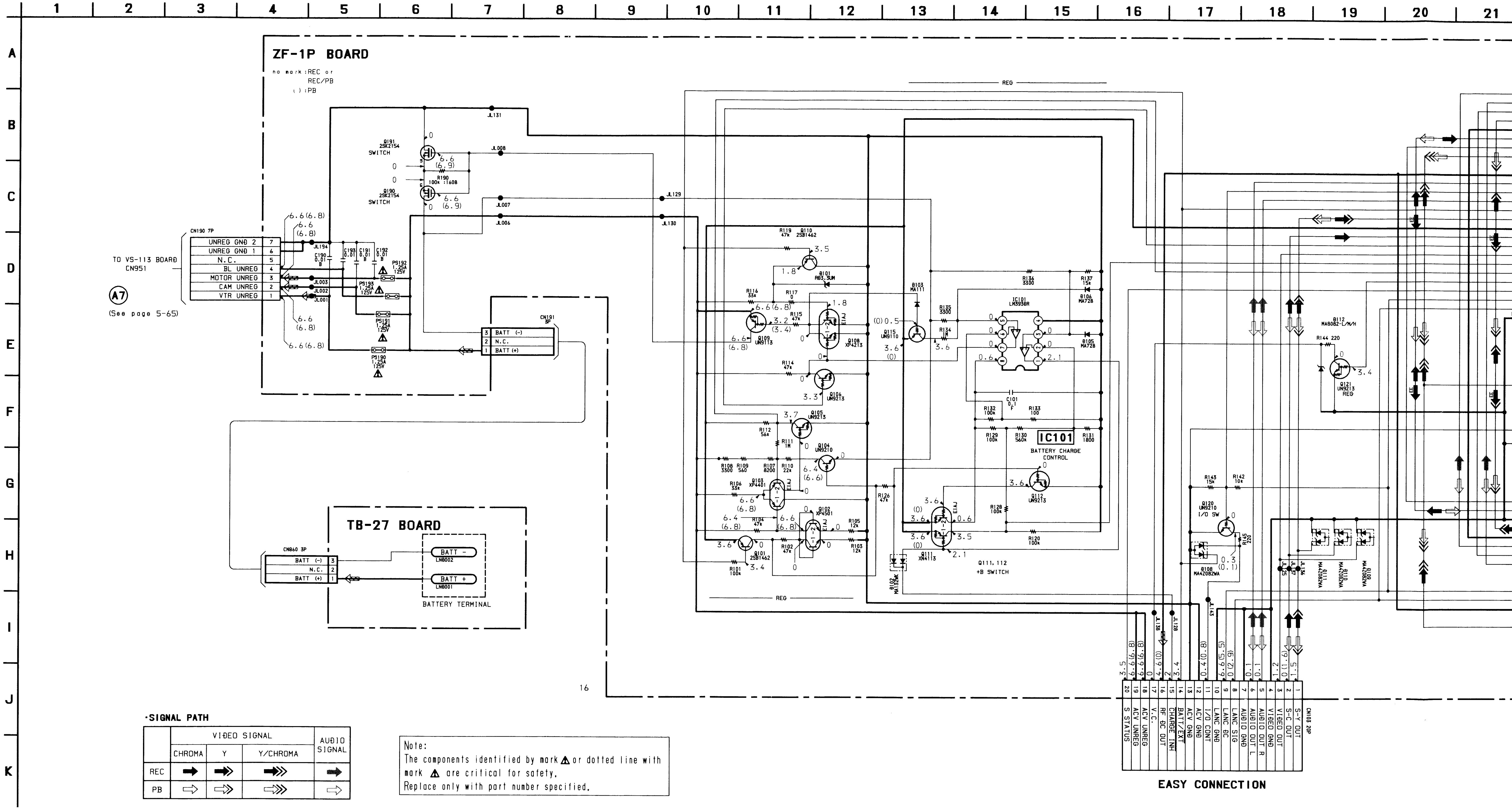
TB-27 BOARD


CN860
LND860
LND861
1-656-550
12


C190
C191
C192
C193
Q190
Q191
R190
CN191
IC101
D105
D106
D116
D117
D118
D119
R120
R128
R129
R130
R131
R132
R133
R136
R137
C101
1-656-552
23
5
6
7
8
9
10
11
12

ZF-1P (EASY CONNECTOR), TB-27 (BATTERY TERMINAL) SCHEMATIC DIAGRAMS

— Ref. No. : ZF-1P Board and TB-27 Board; 1,000 Series —

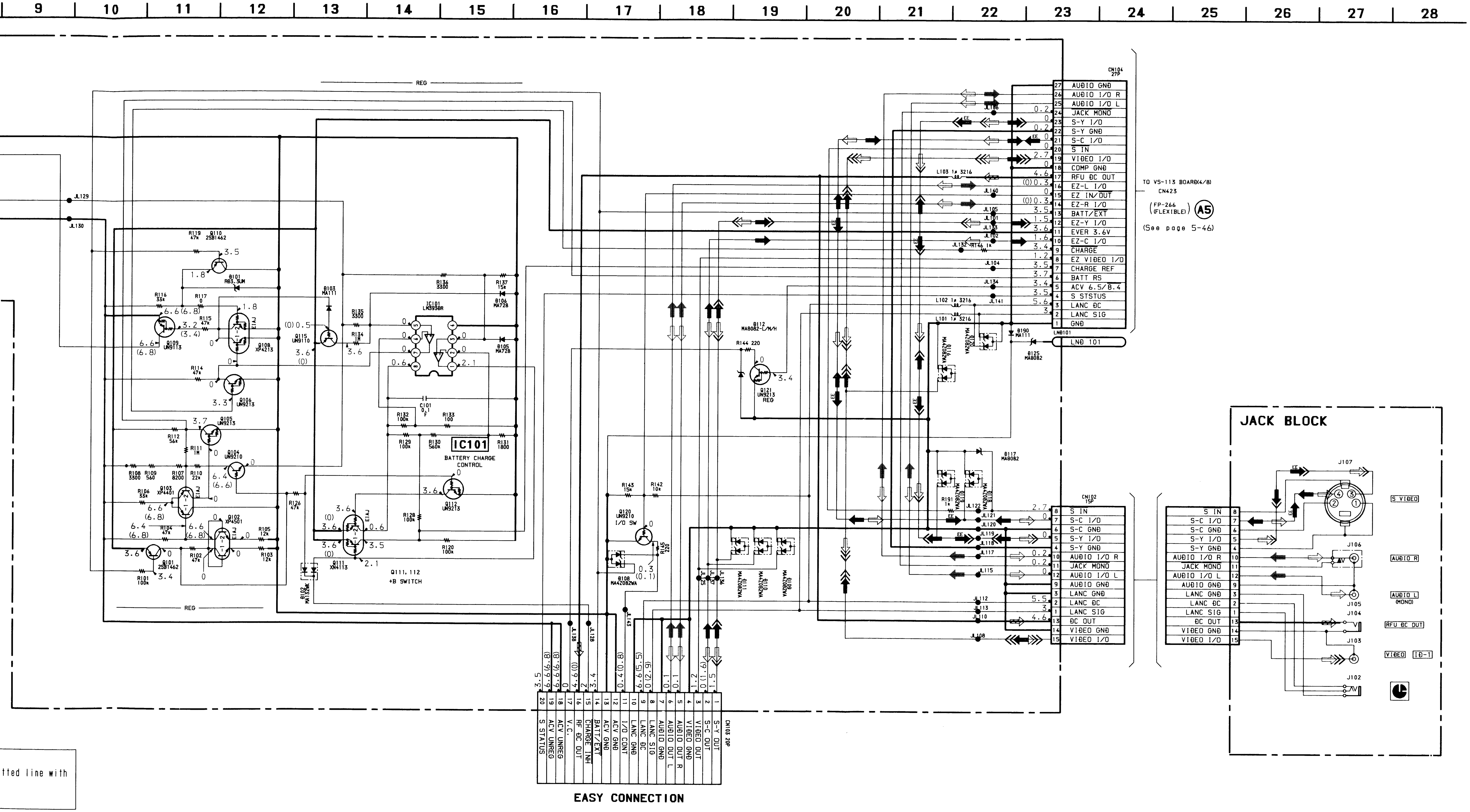


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K
ZF-1P BOARD
no mark : REC or REC/PB
( ) : PB
TO VS-113 BOARD CN951
A7
(See page 5-65)
CN190 7P
UNREG GND 2
UNREG GND 1
N.C.
BL UNREG
MOTOR UNREG
CAM UNREG
VTR UNREG
Q191 2SK2154 SWITCH
Q190 2SK2154 SWITCH
R190 100k :1608
CN191 3P
BATT (-)
N.C.
BATT (+)
PS190 1.25A 125V
PS191 1.25A 125V
PS192 1.25A 125V
PS193 1.25A 125V
REG
IC101 LM3938R
IC101
BATTERY CHARGE CONTROL
Q111, 112 +B SWITCH
Q120 UN9210 I/O SW
Q121 UN9213 REG
D112 MA8082-L/M/H
TB-27 BOARD
CN860 3P
BATT (-)
N.C.
BATT (+)
BATT -
LN8002
BATT +
LN8001
BATTERY TERMINAL
16
CN103 20P
S STATUS
ACV UNREG
ACV UNREG
V.C.
RF DC OUT
CHARGE INH
BATT/EXT
ACV GND
ACV GND
I/O CONT
LANC GND
LANC DC
LANC SIG
AUDIO GND
AUDIO OUT L
AUDIO OUT R
VIDEO GND
VIDEO OUT
S-C OUT
S-Y OUT
EASY CONNECTION

·SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡⋙	➡
PB	⇨	⇨»	⇨⋙	⇨

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
REG
JL129
JL130
R119 47k
Q110 2SB1462
3.5
1.8
D101 RD3.3UM
R116 33k
R117 0
6.6 (6.8)
R115 47k
3.2 (3.4)
1.8
Q109 UN9113
6.6 (6.8)
Q108 XP4213
EIAJ
R114 47k
Q106 UN9213
3.3
Q105 UN9213
3.7
R112 56k
R111 1M
Q104 UN9210
6.4 (6.6)
R108 3300
R109 560
R107 8200
R110 22k
R106 33k
Q103 XP4401
6.6 (6.8)
Q102 XP4501
6.4 (6.8)
R104 47k
6.6 (6.8)
R105 12k
R103 12k
R102 47k
Q101 2SB1462
3.6
R101 100k
3.4
D103 MA111
(0) 0.5
Q115 UN9110
3.6 (0)
R135 3300
R134 1M
3.6
R136 3300
R137 15k
D106 MA728
D105 MA728
IC101 LM393BR
0.6
2.1
C101 0.1 F
R132 100k
R133 100
R129 100k
R130 560k
R131 1800
IC101
BATTERY CHARGE CONTROL
Q112 UN9213
3.6
R128 100k
R126 47k
Q111 XN4113
3.6 (0)
0.6
3.5
2.1
R120 100k
Q111, 112
+B SWITCH
D102 MA132WK
D112 MA8082-L/M/H
R144 220
Q121 UN9213 REG
3.4
R143 15k
R142 10k
Q120 UN9210 I/O SW
R145 220
0.3 (0.1)
D108 MA4Z082WA
JL125
JL137
JL136
D111 MA4Z082WA
D110 MA4Z082WA
D109 MA4Z082WA
JL138
JL128
JL143
EE
L103 1μ 3216
L102 1μ 3216
L101 1μ 3216
JL106
JL140
JL105
JL101
JL133
JL102
JL132
R146 1k
JL104
JL134
JL141
D116 MA4Z082WA
D120 MA4Z082WA
D190 MA111
D125 MA8082
D117 MA8082
D119 MA4Z082WA
D118 MA4Z082WA
R191 1k
JL122
JL121
JL120
JL119
JL118
JL117
JL115
JL112
JL113
JL110
JL108
CN104 27P
27 AUDIO GND
26 AUDIO I/O R
25 AUDIO I/O L
24 JACK MONO 0.2
23 S-Y I/O 0
22 S-Y GND 0.2
21 S-C I/O 0
20 S IN 0
19 VIDEO I/O 2.7
18 COMP GND 0
17 RFU DC OUT 4.6
16 EZ-L I/O (0) 0.3
15 EZ IN/OUT 0
14 EZ-R I/O (0) 0.3
13 BATT/EXT 3.5
12 EZ-Y I/O 1.5
11 EVER 3.6V 3.6
10 EZ-C I/O 1.6
9 CHARGE 3.4
8 EZ VIDEO I/O 1.2
7 CHARGE REF 3.5
6 BATT RS 3.7
5 ACV 6.5/8.4 3.4
4 S STSTUS 3.5
3 LANC DC 5.6
2 LANC SIG 3
1 GND
LND101
LND 101
TO VS-113 BOARD(4/8)
CN423
(FP-266 (FLEXIBLE))
A5
(See page 5-46)
CN103 20P
1 S-Y OUT 1.5
2 S-C OUT 0 (1.6)
3 VIDEO OUT 1.2
4 VIDEO GND
5 AUDIO OUT R 0.1
6 AUDIO OUT L 0.1
7 AUDIO GND
8 LANC SIG 0 (2.9)
9 LANC DC 6.6 (5.5)
10 LANC GND
11 I/O CONT 0.4 (0.8)
12 ACV GND
13 ACV GND
14 BATT/EXT 3.4
15 CHARGE INH 2
16 RF DC OUT 4.6 (0)
17 V.C. 0
18 ACV UNREG 6.6 (6.8)
19 ACV UNREG 6.6 (6.8)
20 S STATUS 3.5
EASY CONNECTION
CN102 15P
8 S IN 2.7
7 S-C I/O 0
6 S-C GND
5 S-Y I/O 0
4 S-Y GND
10 AUDIO I/O R 0.2
11 JACK MONO 0.2
12 AUDIO I/O L 0
9 AUDIO GND
3 LANC GND
2 LANC DC 5.5
1 LANC SIG 3
13 DC OUT 4.6
14 VIDEO GND
15 VIDEO I/O
JACK BLOCK
S IN 8
S-C I/O 7
S-C GND 6
S-Y I/O 5
S-Y GND 4
AUDIO I/O R 10
JACK MONO 11
AUDIO I/O L 12
AUDIO GND 9
LANC GND 3
LANC DC 2
LANC SIG 1
DC OUT 13
VIDEO GND 14
VIDEO I/O 15
J107
1
2
3
4
S VIDEO
J106
AUDIO R
J105
AUDIO L (MONO)
J104
RFU DC OUT
J103
VIDEO
ID-1
J102

tted line with

EASY CONNECTOR ZF-1P
BATTERY TERMINAL TB-27

SECTION 6
REPAIR PARTS LIST

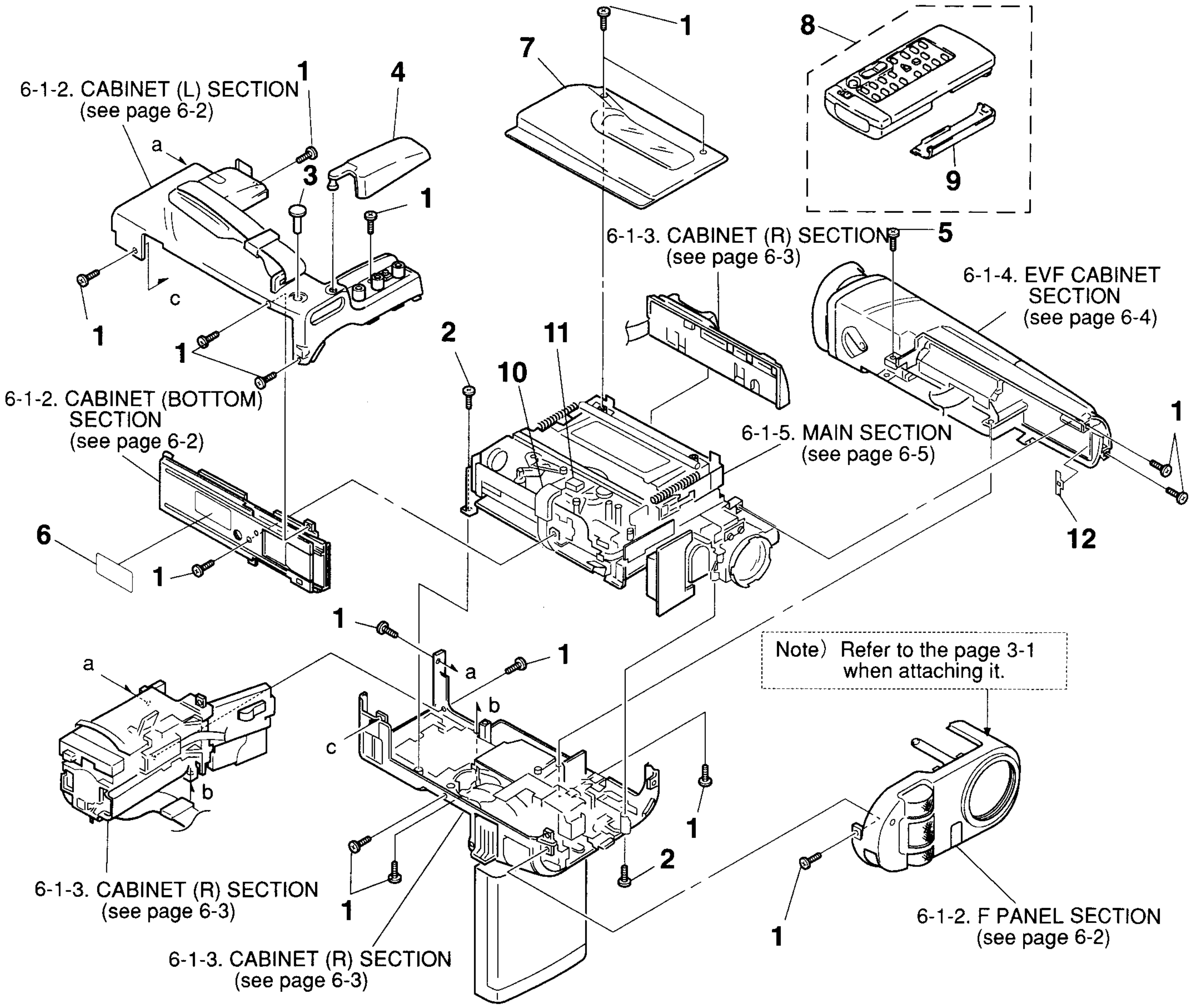
6-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

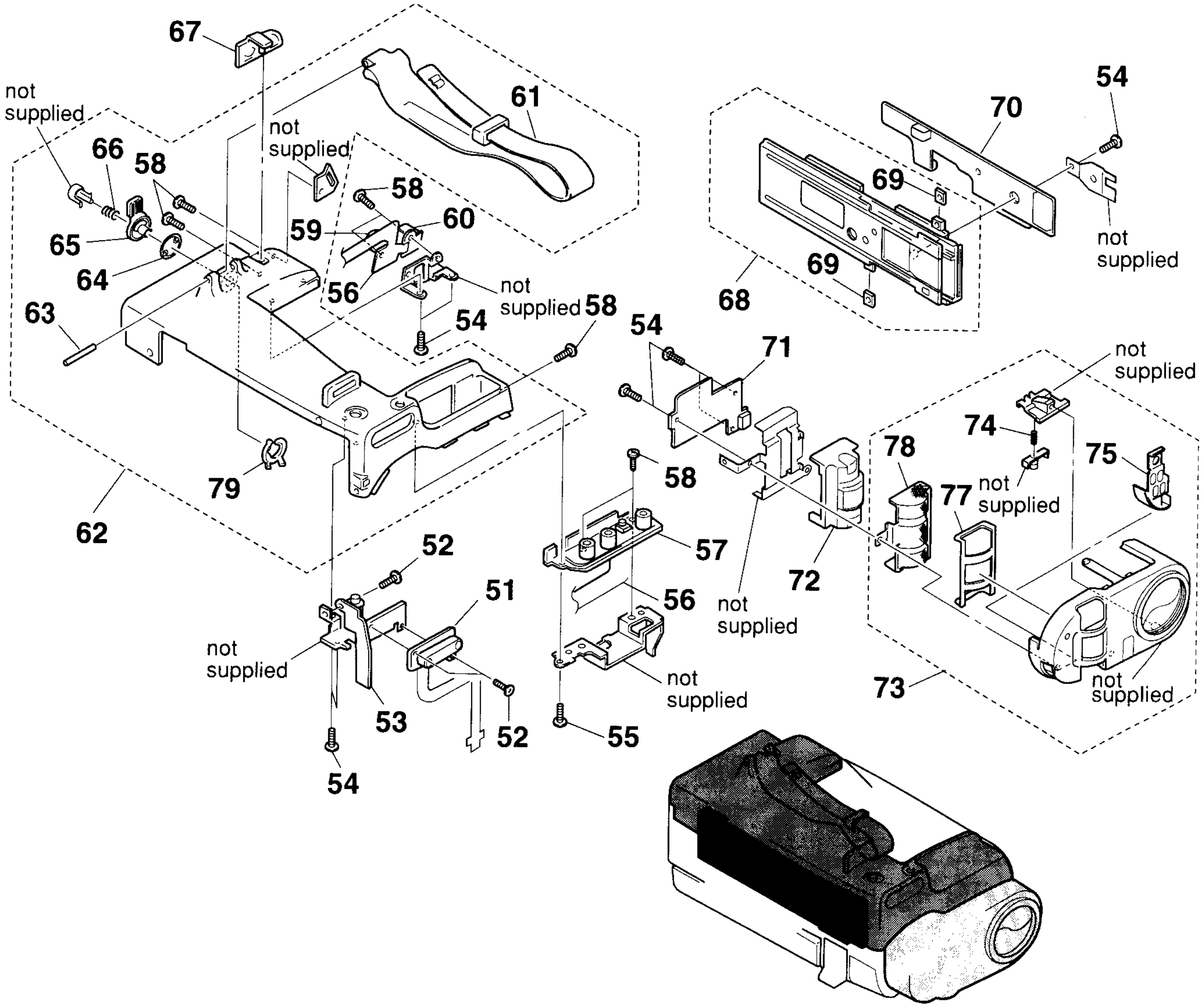
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1-1.OVERALL SECTION


6-1-2. CABINET (L) SECTION
(see page 6-2)
1
4
3
1
a
c
1
1
1
7
1
8
9
6-1-3. CABINET (R) SECTION
(see page 6-3)
5
6-1-4. EVF CABINET SECTION
(see page 6-4)
2
11
10
6-1-2. CABINET (BOTTOM) SECTION
(see page 6-2)
6-1-5. MAIN SECTION
(see page 6-5)
1
12
6
1
1
a
1
a
b
c
b
Note) Refer to the page 3-1 when attaching it.
1
2
6-1-3. CABINET (R) SECTION
(see page 6-3)
1
6-1-3. CABINET (R) SECTION
(see page 6-3)
1
6-1-2. F PANEL SECTION
(see page 6-2)

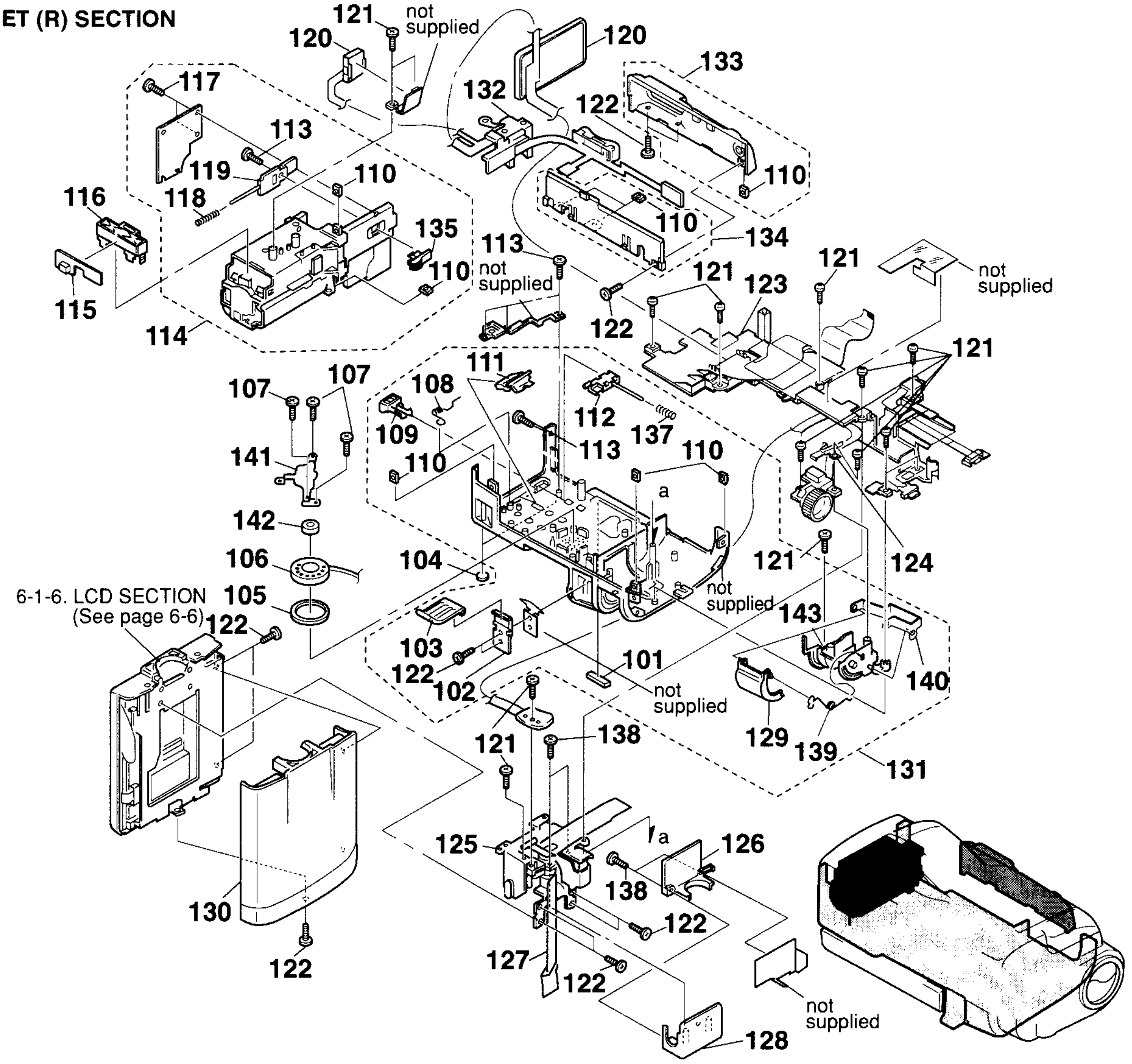
Ref. No.	Part No.	Description	Remarks
1	3-962-826-01	SCREW (2X4)	
2	3-719-601-01	SCREW (B2X5), TAPPING	
3	3-728-267-01	COVER, 3.5 JACK	
4	3-964-498-01	COVER (1), JACK	
5	3-719-845-11	SCREW (B2X8), TAPPING	
* 6	3-966-557-01	LABEL, MODEL NUMBER (E32)	(E,Hongkong)
7	X-3945-364-1	LID ASSY, CASSETTE	
8	8-917-267-90	REMOTE CONTROL RMT-712 SET	(AEP,UK)
8	8-917-270-90	REMOTE CONTROL RMT-711 SET	(E,Hongkong)
9	3-742-854-21	COVER BATTERY, REMOCON	
10	3-965-478-01	CUSHION (D), FLEXIBLE	
11	3-963-808-02	SHEET, DRUM	
12	3-965-314-01	SHEET (U), ELECTROSTATIC	

6-1-2. CABINET (L), CABINET (BOTTOM), F PANEL SECTION


67
not supplied
66
58
61
not supplied
58
59
60
65
64
56
not supplied
58
54
63
79
62
54
70
69
69
68
not supplied
54
71
58
not supplied
74
78
75
77
not supplied
57
72
52
51
56
not supplied
not supplied
not supplied
53
52
55
73
not supplied
54

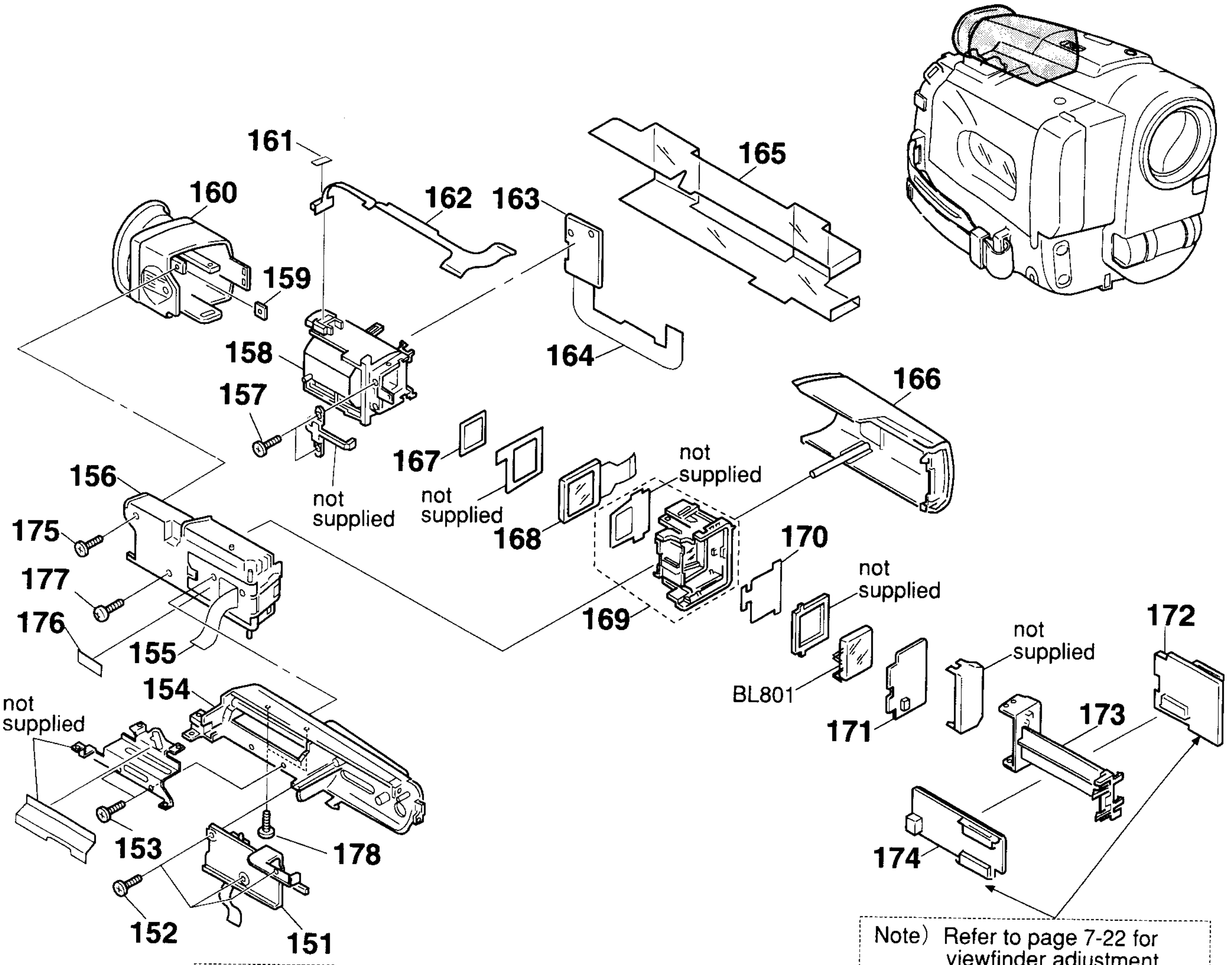
Ref. No.	Part No.	Description	Remarks
51	1-473-176-11	SWITCH BLOCK, CONTROL (CF4220L2)	
52	3-719-381-31	SCREW (M2X3)	
53	A-7072-339-A	HJ-15P BOARD, COMPLETE	
54	3-719-601-01	SCREW (B2X5), TAPPING	
55	3-719-845-11	SCREW (B2X8), TAPPING	
56	1-656-814-11	FP-321 FLEXIBLE BOARD	
57	1-537-896-11	TERMINAL BOARD (I/O JACK)	
58	3-719-381-01	SCREW (M2X4)	
59	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
60	1-695-920-11	JACK, ULTRA MINIATURE 1P	
61	3-948-905-01	BELT, GRIP	
62	X-3945-366-1	CABINET (L) ASSY	
63	3-948-913-01	SHAFT, BELT	
64	3-736-364-01	SPRING	
65	3-942-985-01	KNOB, STAND-BY	
66	3-578-221-00	SPRING, COMPRESSION	
67	3-964-499-01	COVER (2), JACK	
68	X-3945-165-1	CABINET (BOTTOM) ASSY	
69	3-718-233-01	NUT, PLATE	
70	A-7072-344-A	ZF-1P BOARD, COMPLETE	
71	A-7072-338-A	MS-26P BOARD, COMPLETE	
72	1-542-265-11	MICROPHONE UNIT	
73	X-3945-369-1	PANEL ASSY, F (AEP,UK)	
73	X-3945-556-1	PANEL ASSY, F (E,Hongkong)	
74	3-303-973-01	SPRING, COMPRESSION	
75	3-964-471-01	COVER, MJ	
77	3-964-549-01	SHIELD, GRILLE	
78	3-964-468-01	GRILLE, MICROPHONE	
79	3-942-953-01	HOLDER, STAND-BY KNOB	

6-1-3. CABINET (R) SECTION


121
not supplied
120
120
133
132
122
117
113
119
110
110
118
116
110
135
134
113
110
not supplied
121
121
123
121
not supplied
115
114
122
121
107
107
111
108
112
109
113
137
110
110
141
a
142
106
104
121
124
6-1-6. LCD SECTION (See page 6-6)
105
122
not supplied
143
103
101
122
102
not supplied
140
129
139
131
121
138
125
a
126
138
122
130
127
122
122
not supplied
128

Ref. No.	Part No.	Description	Remarks
101	4-969-961-01	EMBLEM (No.4), SONY (TRV100E)	
102	3-964-462-01	BASE, STAND	
103	3-964-461-01	STAND	
104	3-959-978-02	CUSHION, PANEL	
105	3-964-494-01	CUSHION (B), SP	
106	1-504-860-11	SPEAKER (2.8MC)	
107	3-719-601-11	SCREW (B2X5), TAPPING	
108	3-964-460-01	SPRING, TORSION	
109	3-964-540-01	KNOB, P LOCK	
110	3-718-233-01	NUT, PLATE	
111	3-964-459-01	LEVER, P LOCK	
112	3-964-539-01	RETAINER, P LOCK	
113	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
114	X-3945-363-1	HOLDER ASSY, BATTERY	
115	A-7072-251-A	TB-27 BOARD, COMPLETE	
116	1-537-578-11	TERMINAL BOARD, BATTERY	
117	3-948-339-01	SCREW, TAPPING B2	
118	3-565-923-00	SPRING, COMPRESSION	
119	3-964-448-01	RETAINER, BATTERY RELEASE	
120	1-473-175-21	SWITCH BLOCK, CONTROL(CF4220L1)(AEP,UK)	
120	1-473-175-31	SWITCH BLOCK, CONTROL(CF4220L1) (E,Hongkong)	
121	3-719-601-01	SCREW (B2X5), TAPPING	
122	3-962-826-01	SCREW (2X4)	
123	1-473-174-11	SWITCH BLOCK,CONTROL(CF4220R)	
124	3-965-591-01	STOPPER, AL	
125	3-964-556-01	HINGE, LCD	
126	3-964-507-01	COVER (L), HINGE	
127	1-656-565-11	FP-269 FLEXIBLE BOARD	
128	3-964-508-01	COVER (R), HINGE	
129	3-964-518-01	LID, AL	
130	X-3945-423-1	CABINET ASSY, P	
131	X-3945-365-1	CABINET (R) ASSY (AEP,UK)	
131	X-3945-557-1	CABINET (R) ASSY (E,Hongkong)	
132	1-473-258-11	SWITCH BLOCK, CONTROL(CF4220L3)	
133	X-3945-368-1	LID ASSY, LS	
134	X-3945-176-1	RETAINER ASSY, LS LID	
135	3-964-546-01	KNOB, BATTERY RELEASE	
137	4-887-227-01	SPRING, COMPRESSION	
138	3-713-790-21	SCREW (M2X6), TAPPING, P3	
139	3-964-456-01	SPRING, CLICK	
* 140	3-964-457-01	LEVER, LID	
141	3-964-453-01	RETAINER, SP	
142	3-964-454-01	CUSHION (A), SP	
143	3-964-517-11	BASE,AL	

6-1-4. EVF CABINET SECTION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BL801
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not supplied
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not supplied
not supplied
not supplied
not supplied

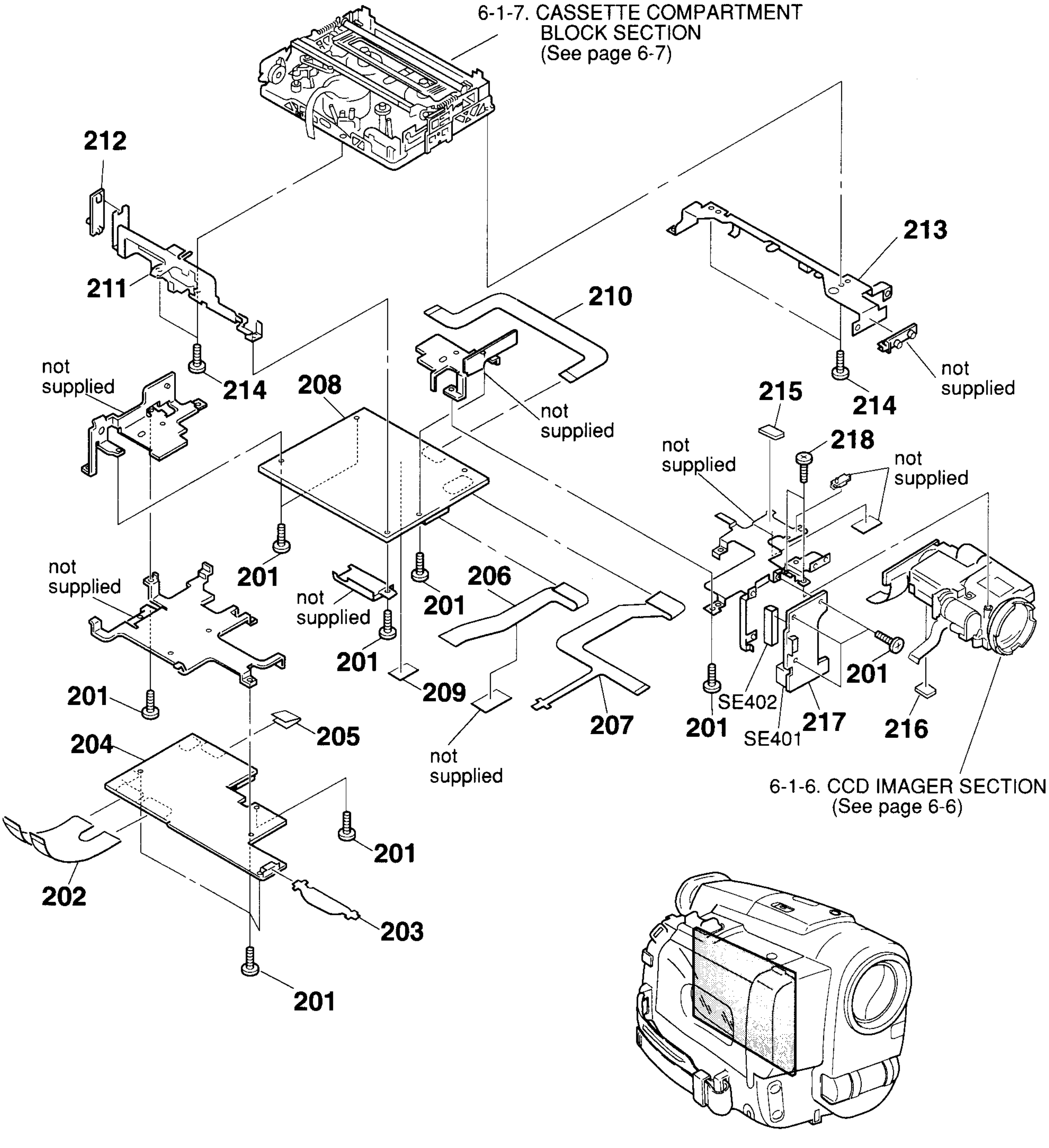
Note) Refer to the page 3-3 when attaching it.

Note) Refer to page 7-22 for viewfinder adjustment.

Ref. No.	Part No.	Description	Remarks
151	1-473-177-11	SWITCH BLOCK, CONTROL(CF4220U)	
152	3-719-601-01	SCREW (B2X5), TAPPING	
153	3-719-381-21	SCREW (M2X6)	
154	X-3945-367-1	CABINET (UPPER) ASSY	
155	1-656-568-11	FP-272 FLEXIBLE BOARD	
156	X-3945-170-1	CABINET ASSY, EVF (LOWER)	
157	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
158	X-3945-173-1	LENS ASSY, VF	
159	3-718-233-01	NUT, PLATE	
160	X-3945-172-1	CABINET ASSY, EVF (REAR)	
161	3-964-513-01	COVER, SENSOR	
162	1-656-569-11	FP-273 FLEXIBLE BOARD	
163	A-7072-343-A	CK-68 BOARD, COMPLETE	
164	1-656-570-11	FP-274 FLEXIBLE BOARD	
165	3-964-958-02	SHEET, ELECTROSTATIC	

Ref. No.	Part No.	Description	Remarks
166	X-3945-171-1	CABINET ASSY, EVF (UPPER)	
* 167	3-960-302-01	CUSHION (1), LCD	
168	8-753-015-00	LCX005AK-4	
169	X-3945-174-1	HOLDER ASSY, PRISM	
* 170	3-960-322-01	PLATE, CONDENSE, BL	
171	A-7072-340-A	LB-40 BOARD, COMPLETE	
172	A-7072-342-A	VF-79 BOARD, COMPLETE	
173	3-964-501-01	HOLDER, PC BOARD	
174	A-7072-341-A	VF-78 BOARD, COMPLETE	
175	3-962-826-01	SCREW (2X4)	
176	3-948-291-21	LABEL (3),EVF	
177	3-719-601-01	SCREW (B2X5), TAPPING	
178	3-719-381-31	SCREW (M2X3)	
BL801	1-517-325-11	LANP, FLUORESCENT (0.55 INCH)	

6-1-5. MAIN SECTION


6-1-7. CASSETTE COMPARTMENT
BLOCK SECTION
(See page 6-7)
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not supplied
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not supplied
not supplied
not supplied
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not supplied
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not supplied
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SE402
SE401
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not supplied
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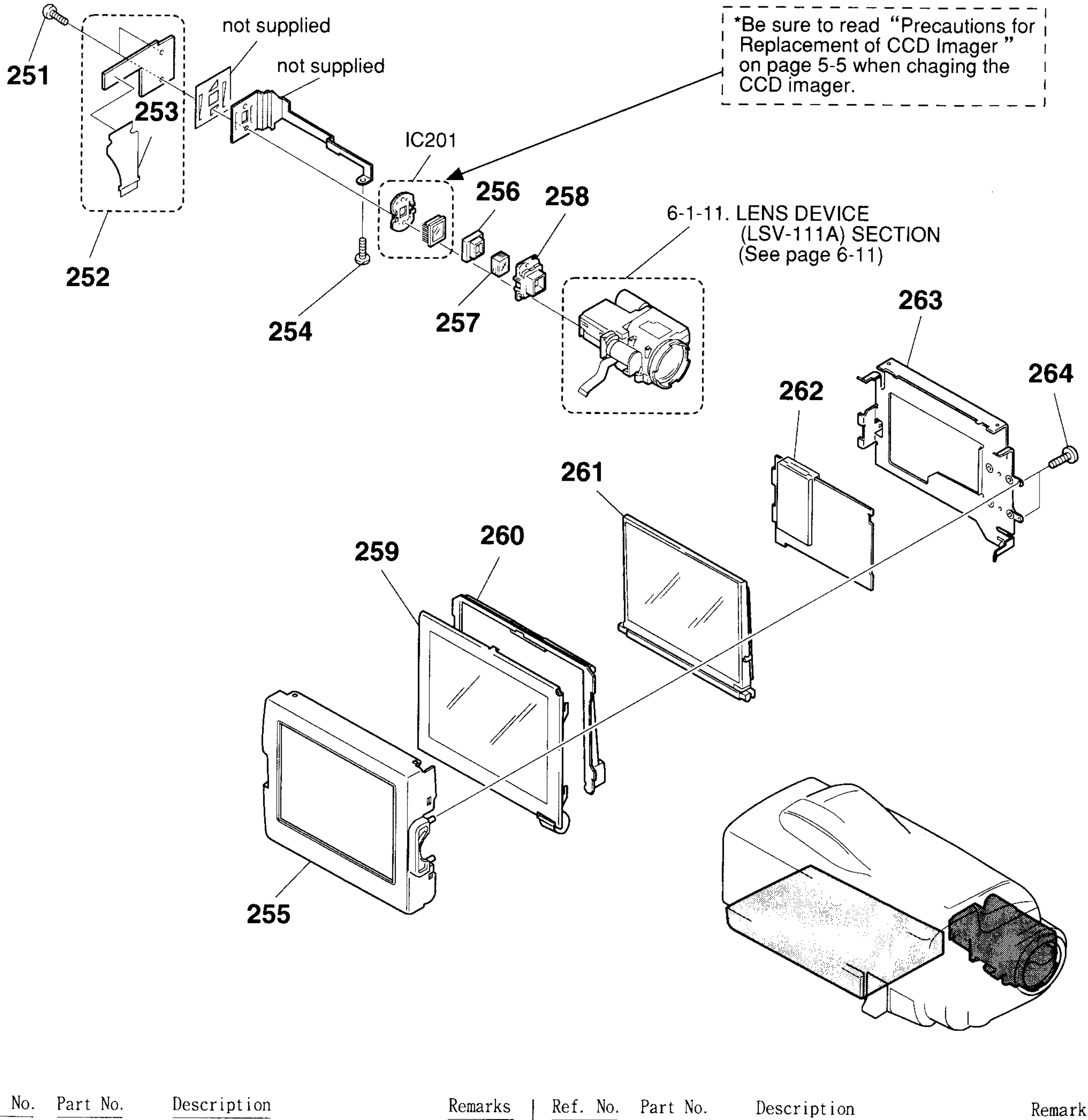
6-1-6. CCD IMAGER SECTION
(See page 6-6)

Ref. No.	Part No.	Description	Remarks
201	3-713-786-21	SCREW (M2X3)	
202	1-656-563-11	FP-267 FLEXIBLE BOARD	
203	1-656-567-11	FP-271 FLEXIBLE BOARD	
204	A-7066-555-A	VC-158 BOARD, COMPLETE	
205	3-965-479-01	CUSHION (F), CFR	
206	1-656-562-11	FP-266 FLEXIBLE BOARD	
207	1-656-564-11	FP-268 FLEXIBLE BOARD	
208	A-7066-554-A	VS-113 BOARD, COMPLETE	
209	3-964-506-01	SPACER (2), LENS	
210	1-656-561-11	FP-265 FLEXIBLE BOARD	
211	3-964-452-01	FRAME (LOWER), MD	
212	3-948-967-01	CLIP (A), FRAME	
213	3-964-451-01	FRAME (UPPER), MD	
214	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
215	3-965-743-01	CUSHION (1),AF	
216	3-965-744-01	CUSHION (2),AF	
217	A-7066-557-A	SE-41P BOARD, COMPLETE	
218	3-719-601-01	SCREW (B2X5), TAPPING	
SE401	1-810-725-31	SENSOR, ANGULAR VELOCITY (PITCH)	
SE402	1-810-725-41	SENSOR, ANGULAR VELOCITY (YAW)	

6-1-6. CCD IMAGER, LCD SECTION



*Be sure to read "Precautions for Replacement of CCD Imager" on page 5-5 when chaging the CCD imager.

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IC201
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6-1-11. LENS DEVICE (LSV-111A) SECTION (See page 6-11)
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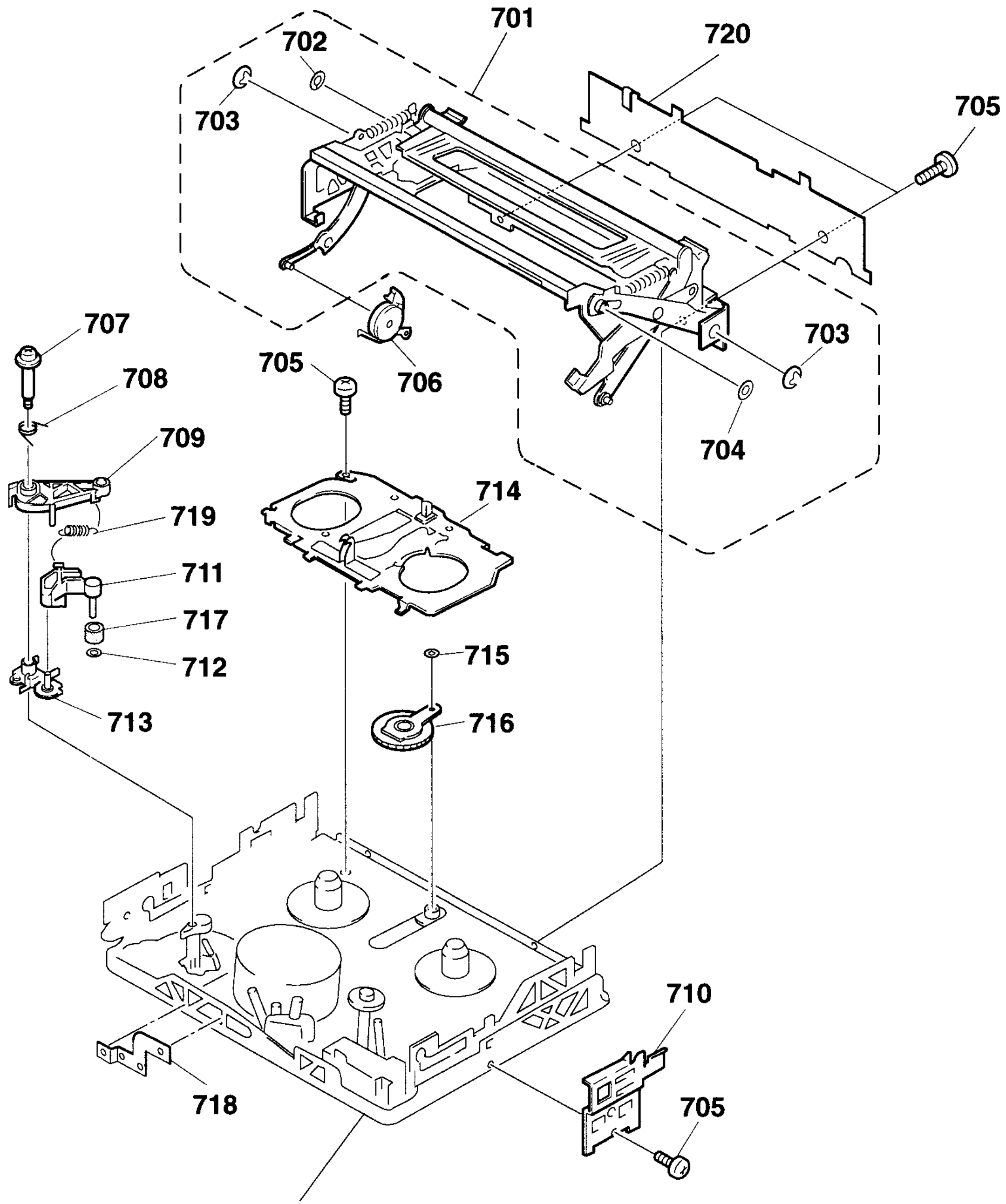
Ref. No.	Part No.	Description	Remarks
251	3-947-268-11	2X7.5, +B TAPPING P TAIT	
252	A-7072-336-A	CD-132P BOARD, COMPLETE	
253	1-656-566-11	FP-270 FLEXIBLE BOARD	
254	3-719-601-01	SCREW (B2X5), TAPPING	
255	3-964-558-01	CABINET (L), P	
256	3-960-149-01	RUBBER (3), SEAL	
257	1-547-735-51	FILTER BLOCK, OPTICAL	
258	3-949-282-01	ADAPTOR (EM), CCD FITTING	

Ref. No.	Part No.	Description	Remarks
259	1-810-862-21	INDICATOR MODULE, LIQUID CRYST	
260	3-964-118-01	ADAPTOR, LCD	
261	1-517-411-11	TUBE,FLUORESCENT, COLD CATHODE	
262	A-7066-556-A	PD-61 BOARD, COMPLETE	
* 263	3-964-509-01	REINFORCEMENT, P	
264	3-719-601-01	SCREW (B2X5), TAPPING	
IC201	A-7030-495-A	CCD BLOCK ASSY (AUTO) (CCD IMAGER)(ICX060-AK-4)	

6-1-7. CASSETTE COMPARTMENT BLOCK SECTION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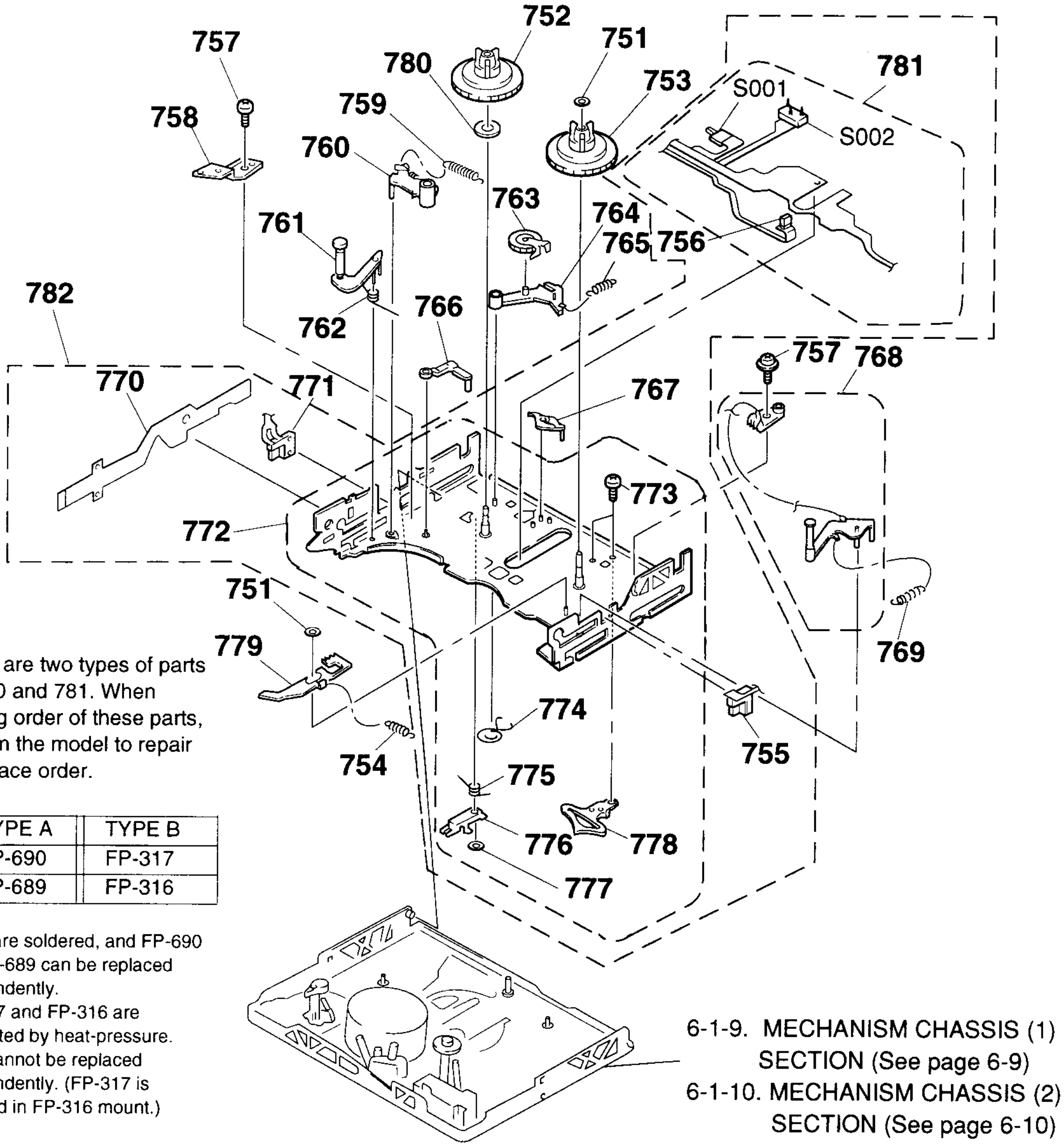
6-1-8. LS CHASSIS BLOCK SECTION
(See page 6-8)

Ref. No.	Part No.	Description	Remarks
701	A-7040-376-A	CASSETTE COMPARTMENT BLOCKASSY	
702	3-669-465-01	WASHER (1.5), STOPPER	
703	7-624-102-04	STOP RING 1.5, TYPE -E	
704	3-331-007-11	WASHER	
705	3-947-503-01	SCREW (M1.4X2.5)	
706	A-7040-377-A	DAMPER ASSY	
707	3-954-941-01	SCREW (M 1.4)	
708	3-954-939-01	SPRING, TORSION	
709	3-954-910-01	LEVER, HP	
* 710	3-954-745-01	RETAINER, CASSETTE COMPARTMENT	
711	X-3943-156-1	ARM ASSY, HP	
712	3-315-414-31	WASHER	
713	3-955-824-01	PLATE, HP	
714	X-3944-226-1	RETAINER ASSY, GOOSENECK	
715	3-331-007-21	WASHER	
716	X-3943-734-1	GEAR ASSY, GOOSENECK	
717	X-3940-796-1	ROLLER ASSY, HC	
* 718	3-958-562-01	REINFORCEMENT, DB	
719	3-954-940-01	SPRING, TENSION	
* 720	3-964-496-01	SHEET METAL, LS LID	

6-1-8. LS CHASSIS BLOCK SECTION



NOTE : There are two types of parts for 770 and 781. When placing order of these parts, confirm the model to repair and place order.

Ref.No.	TYPE A	TYPE B
770	FP-690	FP-317
781	FP-689	FP-316

TYPE A : They are soldered, and FP-690 and FP-689 can be replaced independently.

TYPE B : FP-317 and FP-316 are connected by heat-pressure. They cannot be replaced independently. (FP-317 is included in FP-316 mount.)

6-1-9. MECHANISM CHASSIS (1) SECTION (See page 6-9)

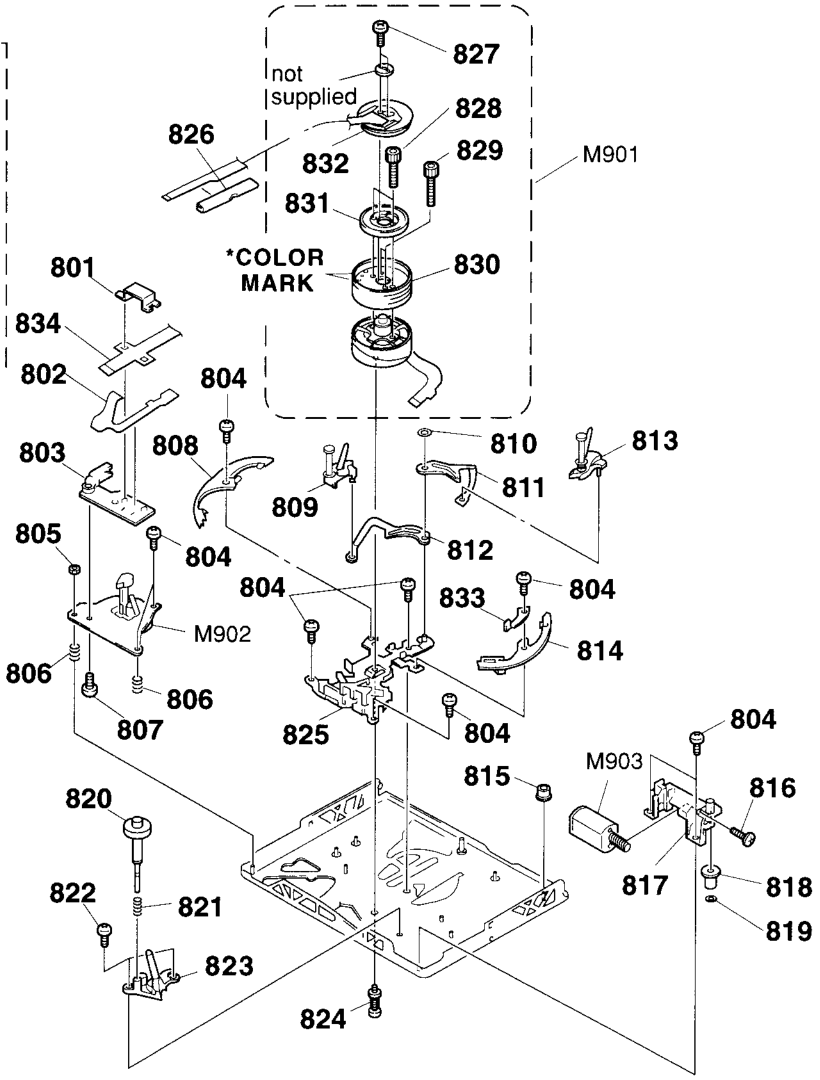
6-1-10. MECHANISM CHASSIS (2) SECTION (See page 6-10)

Ref. No.	Part No.	Description	Remarks
751	3-331-007-21	WASHER	
752	X-3943-732-1	TABLE ASSY, T REEL	
753	X-3943-733-1	TABLE ASSY, S REEL	
754	3-954-852-01	SPRING, TENSION	
755	3-954-870-01	HOLDER (S), SENSOR	
756	3-732-046-01	HOLDER, LED	
757	3-947-503-01	SCREW (M1.4X2.5)	
758	3-955-811-01	RETAINER, TG 9 ARM	
759	3-954-730-01	SPRING, TENSION	
760	X-3943-139-1	ARM ASSY, PINCH	
761	A-7040-368-A	ARM BLOCK ASSY, TG9	
762	3-954-729-01	SPRING, TORSION	
763	X-3943-731-1	GEAR ASSY, T SOFT	
764	3-954-853-01	ARM, T SOFT	
765	3-954-854-01	SPRING, TENSION	
766	3-954-850-01	RATCHET, T	
767	3-954-855-01	ARM, T SOFT RELEASE	
768	X-3943-134-1	ARM ASSY, TG1	
769	3-954-871-04	SPRING, TENSION	
770	1-649-039-11	FP-690 FLEXIBLE BOARD	
770	Not supplied	FP-317 FLEXIBLE BOARD	
771	3-954-887-01	HOLDER (T), SENSOR	
772	A-7040-379-E	CHASSIS SUB BLOCK ASSY, LS	
773	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
774	3-954-804-01	SPRING, LIMITER	
775	3-954-806-01	SPRING, TORSION	
776	3-954-805-01	ARM, T RATCHET RELEASE	
777	3-954-807-01	WASHER	
778	3-954-809-01	PLATE, CAM, LS	
* 779	3-957-931-02	RATCHET, S	
780	3-959-694-01	WASHER (LT), THRUST	
781	A-7053-657-A	FP-689 BOARD, COMPLETE	
781	A-7056-533-A	FP-316 BOARD, COMPLETE (included 770 (FP-317 FLEXIBLE BOARD))	
782	A-7018-186-A	MD ASSY (1)	
S001	1-572-288-11	SWITCH, PUSH (C.C.LOCK)	
S002	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF,ME/MP)	

6-1-9. MECHANISM CHASSIS (1) SECTION

Note) For the rotary upper drum assembly.
There are two kinds of rotary upper drum assemblies.
They can be distinguished by the indicated color mark.

Refer to separate “8mm Video Mechanism adjustment manual Ⅵ TK Mechanism” (9-973-446-11) for replacement of the rotary upper drum.

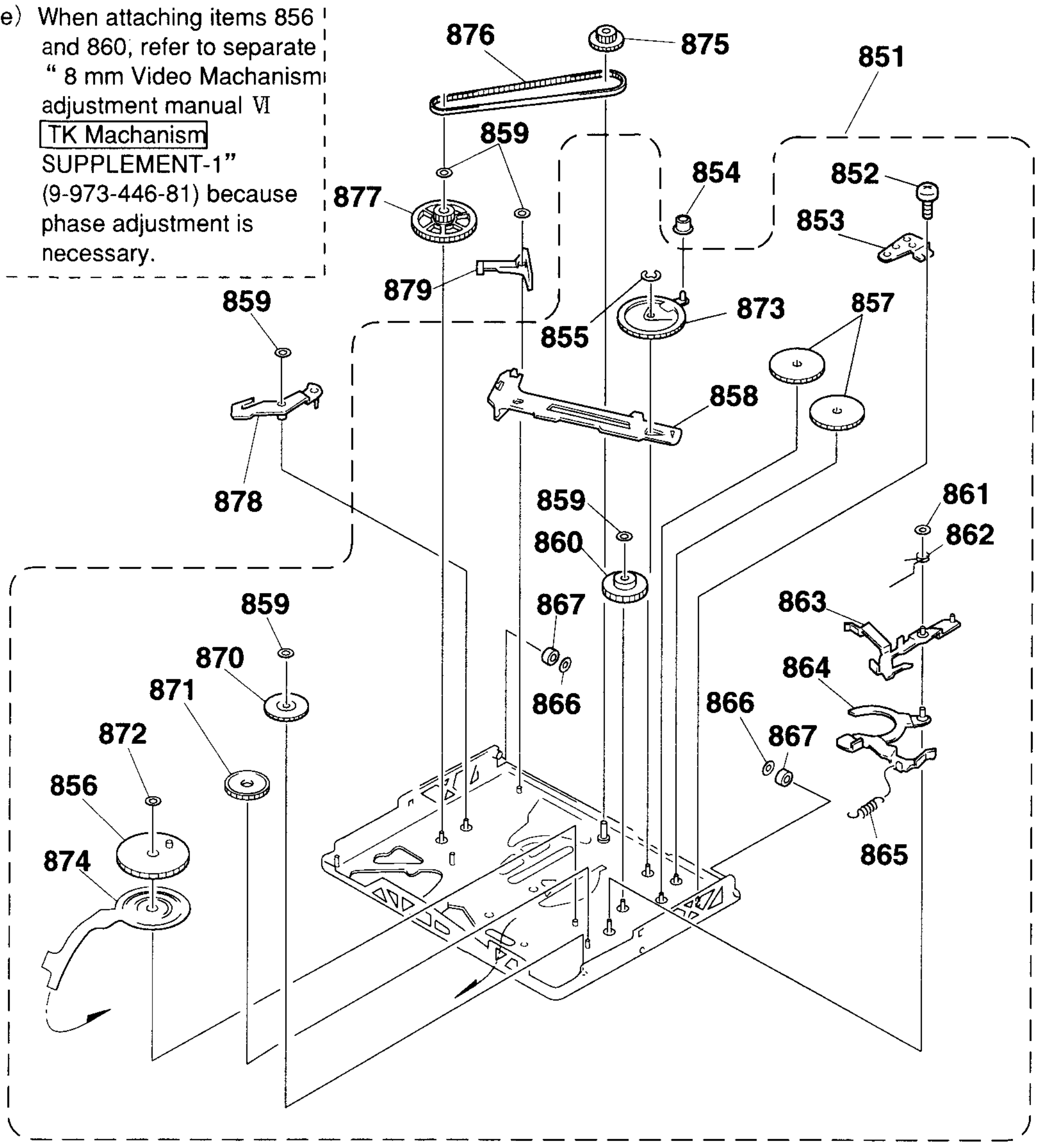


Ref. No.	Part No.	Description	Remarks
* 801	3-956-352-01	RETAINER, FLEXIBLE	
802	1-649-912-11	FP-94 FLEXIBLE BOARD	
* 803	3-956-057-01	BASE, HOLD	
804	3-947-503-01	SCREW (M1.4X2.5)	
805	3-940-892-01	NUT, HEXAGON	
806	3-954-907-01	SPRING, COMPRESSION	
807	2-626-645-01	SCREW (M1.7), WAVE	
808	3-954-899-01	RAIL, T	
809	A-7040-375-A	COASTER (T) BLOCK ASSY (D)	
810	3-331-007-21	WASHER	
811	X-3943-149-1	ARM ASSY, S	
812	X-3943-150-1	ARM ASSY, T	
813	A-7040-391-D	COASTER (S) BLOCK ASSY (D2)	
814	3-954-898-01	RAIL, S	
815	3-954-739-01	ROLLER, LS GUIDE	
816	3-955-807-01	SCREW (M1.6 X 2)	
817	X-3943-128-1	HOLDER ASSY, MOTOR	
818	3-954-794-01	GEAR, WHEEL	
819	3-728-091-01	WASHER, STOPPER	
820	X-3943-146-3	ROLLER ASSY, TG3	

Ref. No.	Part No.	Description	Remarks
821	3-954-886-01	SPRING, COMPRESSION	
822	3-703-816-51	SCREW (M1.4X3.5), SPECIAL HEAD	
823	X-3943-145-1	BASE ASSY, TG3	
824	X-3943-151-2	SCREW ASSY, FITTING	
825	X-3944-474-1	BASE ASSY, DRUM	
* 826	3-961-756-01	CUSHION, D FLEXIBLE	
827	3-728-108-41	SCREW (M1.4X2.7)	
828	3-727-807-01	BOLT (M1.7X3.3), HEXAGON SOCKET	
829	3-727-809-01	BOLT (M1.4X5), HEXAGON SOCKET	
830	A-7049-461-A	DRUM ASSY, UPPER (DGR-80-R-(1)) (COLOR MARK:GREEN,GREEN/RED,BLACK,BLACK/RED)	
830	A-7049-464-A	DRUM ASSY, UPPER (DGR-80-R-(2)) (COLOR MARK:RED,RED/RED,BLUE.BLUE/RED)	
831	A-7049-219-A	MOTOR BLOCK ASSY (ROTOR)	
832	A-7049-597-A	MOTOR BLOCK ASSY (STATOR)	
833	3-957-868-01	RETAINER, DRUM	
834	1-649-039-11	FP-690 FLEXIBLE BOARD	
M901	A-7048-716-A	DRUM ASSY (DGH-80E-R)	
M902	8-835-498-12	MOTOR, DC SCE-0401A (CAPSTAN)	
M903	X-3943-127-1	MOTOR ASSY, L (LOADING)	

6-1-10. MECHANISM CHASSIS (2) SECTION

Note) When attaching items 856 and 860, refer to separate " 8 mm Video Machanism adjustment manual Ⅵ TK Machanism SUPPLEMENT-1" (9-973-446-81) because phase adjustment is necessary.



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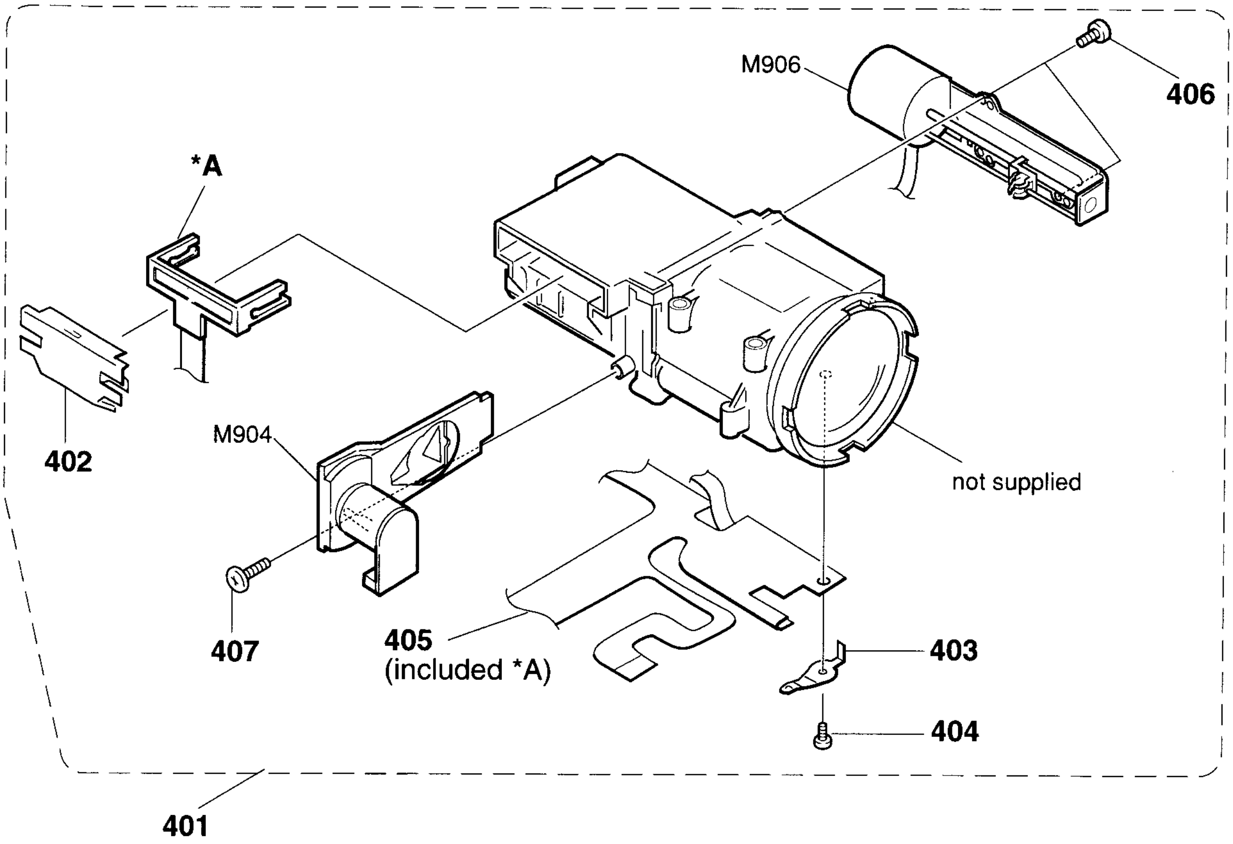
Ref. No.	Part No.	Description	Remarks
851	A-7040-378-A	CHASSIS SUB BLOCK ASSY, MECH	
852	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
* 853	3-954-744-01	RETAINER, GEAR	
854	3-957-367-01	ROLLER, LS GUIDE (2)	
855	3-578-254-00	RING, RETAINING, E1.2	
856	X-3943-124-1	GEAR ASSY, MODE	
857	3-954-747-01	GEAR (D)	
858	3-954-748-01	SLIDER, M	
859	3-331-007-21	WASHER	
860	3-954-746-01	GEAR (C)	
861	3-955-804-01	WASHER	
862	3-954-791-01	SPRING, TORSION COIL	
863	3-964-954-01	ARM (VA), MODE	
864	X-3943-126-1	ARM (2) ASSY, MODE	
865	3-954-790-01	SPRING, TENSHION	
866	3-331-007-11	WASHER	
867	3-954-742-01	ROLLER, LS	
870	3-954-749-01	GEAR (A)	
871	3-954-750-01	GEAR (B)	
872	3-579-788-01	WASHER, STOPPER	
873	3-954-752-01	GEAR, LS	
874	1-649-038-11	FP-685 FLEXIBLE BOARD	
875	3-957-929-01	PULLEY, RELAY	
876	3-954-789-01	BELT, RELAY	
877	X-3943-123-1	GEAR ASSY, CONVERSION	
878	X-3943-336-1	ARM ASSY, PINCH RELEASE	
879	3-954-741-01	ARM, EJ	

6-1-11. LENS DEVICE (LSV-111A) SECTION


M906
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*A
402
M904
not supplied
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(included *A)
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404
401

Ref. No.	Part No.	Description	Remarks
401	8-848-705-01	DEVICE, LENS LSV-111A	
402	2-626-977-01	RETAINER, MR	
403	2-626-976-01	RETAINER, Z	
404	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
405	A-4910-621-A	FLEXIBLE BLOCK ASST, M	
406	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
407	2-623-756-21	SCREW (B1.7X5), TAPPING, SPECIAL HEAD	
M904	1-547-756-11	IRIS (IRX-011)	
M906	8-835-491-01	MOTOR, STEPING (SPB-01S01N)(ZOOM)	

5-2. ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description	Remarks
	A-7072-336-A	CD-132P BOARD, COMPLETE ************************	
		(Ref.No.1,000 Seriese)	
	1-656-566-11	FP-270 FLEXIBLE BOARD	
		< CAPACITOR >	
C201	1-135-214-21	TANTAL. CHIP 4.7uF 20%	20V
C202	1-135-210-11	TANTALUM CHIP 4.7uF 20%	10V
C203	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C204	1-164-346-11	CERAMIC CHIP 1uF	16V
C205	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C206	1-104-908-11	TANTAL. CHIP 47uF 20%	4V
		< IC >	
IC201	A-7030-495-A	CCD BLOCK ASSY (AUTO) (CCD IMAGER)(ICX060-AK-4)	
		< TRANSISTOR >	
Q201	8-729-232-86	TRANSISTOR 2SK1875	
Q202	8-729-117-73	TRANSISTOR 2SC4178-F14	
		< RESISTOR >	
R201	1-216-295-91	CONDUCTOR, CHIP (2012)	
R202	1-216-809-11	METAL CHIP 100 5% 1/16W	
R203	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R204	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R205	1-216-820-11	METAL CHIP 820 5% 1/16W	
R206	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R207	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks
	A-7072-343-A	CK-68 BOARD, COMPLETE **********************	
		(Ref.No.3,000 Seriese)	
	1-656-570-11	FP-274 FLEXIBLE BOARD	
		< CONNECTOR >	
CN701	1-766-346-21	CONNECTOR, FFC/FPC 16P	
	A-7056-533-A	FP-316 BOARD, COMPLETE **********************	
		(Ref.No.6,000 Seriese)	
	3-732-046-01	HOLDER, LED	
	3-954-870-01	HOLDER (S), SENSOR	
	3-954-887-01	HOLDER (T), SENSOR	
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	
		< HOLE ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q002	8-729-907-25	TRANSISTOR PT4850F	
Q003	8-729-907-25	TRANSISTOR PT4850F	
		< RESISTOR >	
R001	1-216-817-11	METAL CHIP 470 5% 1/16W	
R002	1-216-817-11	METAL CHIP 470 5% 1/16W	
R003	1-216-817-11	METAL CHIP 470 5% 1/16W	
R004	1-216-817-11	METAL CHIP 470 5% 1/16W	
		< SWITCH >	
S001	1-572-288-11	SWITCH, PUSH (C.C.LOCK)	
S002	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP)	

Ref. No.	Part No.	Description	Remarks
	A-7053-657-A	FP-689 BOARD, COMPLETE **********************	
		(Ref.No.3,000 Seriese)	
	3-732-046-01	HOLDER, LED	
	3-954-870-01	HOLDER (S), SENSOR	
	3-954-887-01	HOLDER (T), SENSOR	
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	
		< HOLE ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q002	8-729-907-25	TRANSISTOR PT4850F	
Q003	8-729-907-25	TRANSISTOR PT4850F	
		< RESISTOR >	
R001	1-216-817-11	METAL CHIP 470 5%	1/16W
R002	1-216-817-11	METAL CHIP 470 5%	1/16W
R003	1-216-817-11	METAL CHIP 470 5%	1/16W
R004	1-216-817-11	METAL CHIP 470 5%	1/16W
		< SWITCH >	
S001	1-572-288-31	SWITCH, PUSH (C.C.LOCK)	
S002	1-692-614-11	SWITCH, PUSH (3 KEY)(REC PROOF, ME/MP)	

Ref. No.	Part No.	Description	Remarks
	A-7072-339-A	HJ-15P BOARD, COMPLETE **********************	
		(Ref.No.1,000 Seriese)	
		< CONNECTOR >	
CN599	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	
		< JACK >	
J599	1-569-950-21	JACK (HEADPHONE)	

Ref. No.	Part No.	Description	Remarks
	A-7072-340-A	LB-40 BOARD, COMPLETE *********************	
		(Ref.No.3,000 Seriese)	
		< LAMP >	
BL801	1-517-325-11	LAMP FLUORESCENT (0.55 INCH)	
		< CAPACITOR >	
C801	1-104-917-11	TANTAL. CHIP 15uF 20%	20V
C802	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C803	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C804	1-163-020-00	CERAMIC CHIP 0.0082uF 10%	50V
C805	1-163-020-00	CERAMIC CHIP 0.0082uF 10%	50V
C806	1-163-020-00	CERAMIC CHIP 0.0082uF 10%	50V
		< CONNECTOR >	
CN801	1-573-305-11	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D801	8-719-033-14	DIODE CL-170PG-CD-T	
		< COIL >	
L801	1-412-032-11	INDUCTOR CHIP 100uH	
L802	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q801	8-729-024-60	TRANSISTOR MTD6N15T4	
		< RESISTOR >	
R802	1-216-840-11	METAL CHIP 39K 5%	1/16W
		< TRANSFORMER >	
T801	1-426-849-31	TRANSFORMER, INVERTER	

Ref. No.	Part No.	Description	Remarks
	A-7072-338-A	MS-26P BOARD, COMPLETE **********************	
		(Ref.No.1,000 Seriese)	
		< CAPACITOR >	
C501	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C502	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C503	1-162-979-11	CERAMIC CHIP 0.0027uF 10%	50V
C504	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C505	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C506	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V
C507	1-162-959-11	CERAMIC CHIP 330PF 5%	50V
C509	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V
C510	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C511	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C512	1-164-172-11	CERAMIC CHIP 0.0056uF 10%	25V
C513	1-162-979-11	CERAMIC CHIP 0.0027uF 10%	50V
C514	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C515	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C516	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V

Ref. No.	Part No.	Description			Remarks
C517	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C518	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C519	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C520	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C521	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C522	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C523	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C524	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C525	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C526	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C527	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C528	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C529	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C530	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C531	1-164-346-11	CERAMIC CHIP	1uF		16V
C532	1-164-346-11	CERAMIC CHIP	1uF		16V
C533	1-164-346-11	CERAMIC CHIP	1uF		16V
C536	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C537	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C538	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C539	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C540	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C541	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C542	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C543	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C544	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C545	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C546	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C547	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C548	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C549	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C550	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C551	1-164-346-11	CERAMIC CHIP	1uF		16V
C554	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C555	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C556	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C557	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C558	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C559	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C560	1-163-033-91	CERAMIC CHIP	0.022uF		50V
C561	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C562	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C563	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C564	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C566	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C567	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C568	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C581	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C582	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C585	1-164-505-11	CERAMIC CHIP	2.2uF		16V

Ref. No.	Part No.	Description			Remarks
C589	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
		< CONNECTOR >			
CN501	1-580-789-21	PIN, CONNECTOR (SMD) 6P			
* CN504	1-580-055-21	PIN, CONNECTOR 2P			
CN505	1-750-361-21	CONNECTOR, FFC/FPC (ZIF) 30P			
		< DIODE >			
D501	8-719-420-14	DIODE	MA8082-M		
D502	8-719-420-14	DIODE	MA8082-M		
D503	8-719-404-46	DIODE	MA110		
D504	8-719-045-87	DIODE	MA4Z082WA-TX		
D505	8-719-045-87	DIODE	MA4Z082WA-TX		
D506	8-719-421-67	DIODE	MA132WK		
D507	8-719-800-76	DIODE	1SS226		
D508	8-719-404-46	DIODE	MA110		
D509	8-719-951-20	LED	BR1102W		
D510	8-719-404-46	DIODE	MA110		
D511	8-719-404-46	DIODE	MA110		
D512	8-719-404-46	DIODE	MA110		
D513	8-719-045-87	DIODE	MA4Z082WA-TX		
D514	8-719-045-87	DIODE	MA4Z082WA-TX		
		< IC >			
IC501	8-759-248-31	IC	BA7780KV-E2		
IC502	8-759-299-00	IC	BA7785FS-E2		
IC503	8-749-923-29	IC	RS-20E-T		
		< JACK >			
J501	1-691-737-11	JACK (SMALL TYPE) (MIC)			
		< COIL >			
L501	1-410-993-11	INDUCTOR CHIP	1uH		
L502	1-410-993-11	INDUCTOR CHIP	1uH		
L503	1-410-993-11	INDUCTOR CHIP	1uH		
L504	1-410-993-11	INDUCTOR CHIP	1uH		
L505	1-410-993-11	INDUCTOR CHIP	1uH		
L506	1-410-993-11	INDUCTOR CHIP	1uH		
		< TRANSISTOR >			
Q503	8-729-428-88	TRANSISTOR	UN9113		
		< RESISTOR >			
R502	1-216-833-11	METAL CHIP	10K	5%	1/16W
R504	1-216-837-11	METAL CHIP	22K	5%	1/16W
R505	1-216-842-11	METAL CHIP	56K	5%	1/16W
R506	1-216-841-11	METAL CHIP	47K	5%	1/16W
R507	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R508	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R509	1-216-821-11	METAL CHIP	1K	5%	1/16W
R510	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R511	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-833-11	METAL CHIP	10K	5%	1/16W
R514	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R515	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R516	1-216-821-11	METAL CHIP	1K	5%	1/16W
R517	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R518	1-216-837-11	METAL CHIP	22K	5%	1/16W
R519	1-216-834-11	METAL CHIP	12K	5%	1/16W
R520	1-216-834-11	METAL CHIP	12K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W
R522	1-216-839-11	METAL CHIP	33K	5%	1/16W
R523	1-216-839-11	METAL CHIP	33K	5%	1/16W
R524	1-216-835-11	METAL CHIP	15K	5%	1/16W
R525	1-216-835-11	METAL CHIP	15K	5%	1/16W
R527	1-216-834-11	METAL CHIP	12K	5%	1/16W
R528	1-216-834-11	METAL CHIP	12K	5%	1/16W
R529	1-216-834-11	METAL CHIP	12K	5%	1/16W
R533	1-216-841-11	METAL CHIP	47K	5%	1/16W
R534	1-216-845-11	METAL CHIP	100K	5%	1/16W
R535	1-216-836-11	METAL CHIP	18K	5%	1/16W
R536	1-216-836-11	METAL CHIP	18K	5%	1/16W
R538	1-216-835-11	METAL CHIP	15K	5%	1/16W
R539	1-216-835-11	METAL CHIP	15K	5%	1/16W
R540	1-216-839-11	METAL CHIP	33K	5%	1/16W
R541	1-216-834-11	METAL CHIP	12K	5%	1/16W
R542	1-216-835-11	METAL CHIP	15K	5%	1/16W
R543	1-216-864-11	METAL CHIP	0	5%	1/16W
R544	1-216-833-11	METAL CHIP	10K	5%	1/16W
R545	1-216-837-11	METAL CHIP	22K	5%	1/16W
R546	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R547	1-216-821-11	METAL CHIP	1K	5%	1/16W
R548	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R549	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R550	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R551	1-216-845-11	METAL CHIP	100K	5%	1/16W
R554	1-216-810-11	METAL CHIP	120	5%	1/16W
R555	1-216-810-11	METAL CHIP	120	5%	1/16W
R556	1-216-841-11	METAL CHIP	47K	5%	1/16W
R557	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R558	1-216-849-11	METAL CHIP	220K	5%	1/16W
R561	1-216-837-11	METAL CHIP	22K	5%	1/16W
R562	1-216-853-11	METAL CHIP	470K	5%	1/16W
R568	1-216-819-11	METAL CHIP	680	5%	1/16W
R570	1-216-857-11	METAL CHIP	1M	5%	1/16W
R580	1-216-864-11	METAL CHIP	0	5%	1/16W
R585	1-216-838-11	METAL CHIP	27K	5%	1/16W
R592	1-216-821-11	METAL CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R593	1-216-821-11	METAL CHIP	1K	5%	1/16W

A-7066-556-A PD-61 BOARD, COMPLETE
****
(Ref.No.5,000 Seriese)

< CAPACITOR >

C001	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C002	1-104-914-11	TANTAL. CHIP	22uF	20%	16V
C003	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C004	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C005	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C006	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C007	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C008	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C009	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C011	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C013	1-104-911-11	TANTAL. CHIP	33uF	20%	10V
C014	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C015	1-109-986-11	FILM CHIP	0.033uF	5%	50V
C016	1-109-986-11	FILM CHIP	0.033uF	5%	50V
C017	1-107-525-11	CERAMIC CHIP	18PF	10%	3KV
C101	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C102	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C103	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C104	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C105	1-135-333-11	TANTAL. CHIP	1uF	20%	16V
C107	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C108	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C109	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C110	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C112	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C113	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C114	1-164-363-11	CERAMIC CHIP	560PF	5%	50V
C115	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C116	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C118	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C119	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C122	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C123	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C124	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C125	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C126	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C127	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C128	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C129	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C131	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C132	1-135-333-11	TANTAL. CHIP	1uF	20%	16V

Ref. No.	Part No.	Description			Remarks
C133	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C134	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C135	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C136	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C137	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C138	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C139	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C140	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C141	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C142	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C143	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C144	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C145	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C146	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C148	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C149	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C150	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C151	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C154	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C155	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C158	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C160	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C161	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C162	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C163	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C164	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C165	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C166	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C168	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C169	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C173	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C174	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C175	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C176	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C179	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C180	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C181	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C182	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C183	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C184	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C185	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C186	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C187	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
		< CONNECTOR >			
* CN001	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN002	1-770-741-21	CONNECTOR, FFC/FPC 32P			
CN004	1-573-368-11	CONNECTOR, FFC/FPC 28P			

Ref. No.	Part No.	Description		Remarks
CN005	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P		
		< DIODE >		
D001	8-719-404-49	DIODE	MA111	
D002	8-719-404-49	DIODE	MA111	
D003	8-719-049-57	DIODE	CL-170B-X-T	
D101	8-713-102-80	DIODE	1T369-01-T8A	
D102	8-719-404-49	DIODE	MA111	
D103	8-713-102-80	DIODE	1T369-01-T8A	
D105	8-719-420-51	DIODE	MA729	
D107	8-719-404-49	DIODE	MA111	
D108	8-719-404-49	DIODE	MA111	
D110	8-713-102-80	DIODE	1T369-01-T8A	
		< IC >		
IC001	8-759-521-35	IC	TL5001CD-E2	
IC102	8-759-058-41	IC	NJM3416V(TE2)	
IC103	8-759-336-98	IC	NM7011T-E2	
IC104	8-759-251-40	IC	MB88E346PFV-G-BND-ER	
IC104	8-759-337-07	IC	AK9813F-E2	
IC105	8-752-070-03	IC	CXA1785AR-T4	
		< COIL >		
L001	1-412-027-11	INDUCTOR CHIP	2.2uH	
L002	1-424-674-11	COIL, CHOKE	22uH	
L003	1-406-924-11	COIL, CHOKE	150uH	
L101	1-412-031-11	INDUCTOR CHIP	47uH	
L104	1-412-030-11	INDUCTOR CHIP	22uH	
L105	1-414-194-41	INDUCTOR	33uH	
L106	1-412-956-21	INDUCTOR	27uH	
L107	1-412-960-21	INDUCTOR	56uH	
L108	1-412-029-11	INDUCTOR CHIP	10uH	
L110	1-412-951-11	INDUCTOR	10uH	
L111	1-412-952-11	INDUCTOR	12uH	
L112	1-412-028-11	INDUCTOR CHIP	4.7uH	
L113	1-412-963-11	INDUCTOR	100uH	
		< TRANSISTOR >		
Q001	8-729-429-50	TRANSISTOR	XP4312	
Q003	8-729-425-64	TRANSISTOR	2SD2216Q	
Q004	8-729-429-18	TRANSISTOR	UN9213	
Q005	8-729-823-84	TRANSISTOR	FP102	
Q007	8-729-028-36	TRANSISTOR	FX507-TL1	
Q009	8-729-403-27	TRANSISTOR	XN4401	
Q101	8-729-429-18	TRANSISTOR	UN9213	
Q103	8-729-429-50	TRANSISTOR	XP4312	
Q104	8-729-429-18	TRANSISTOR	UN9213	
Q105	8-729-429-50	TRANSISTOR	XP4312	

Ref. No.	Part No.	Description	Remarks
Q106	8-729-425-64	TRANSISTOR 2SD2216Q	
Q108	8-729-429-18	TRANSISTOR UN9213	
Q109	8-729-425-50	TRANSISTOR 2SB1462Q	
Q110	8-729-429-18	TRANSISTOR UN9213	
Q111	8-729-425-64	TRANSISTOR 2SD2216Q	
Q112	8-729-429-18	TRANSISTOR UN9213	
Q114	8-729-425-50	TRANSISTOR 2SB1462Q	
Q115	8-729-429-18	TRANSISTOR UN9213	
Q116	8-729-427-46	TRANSISTOR XP4213	
Q118	8-729-429-18	TRANSISTOR UN9213	
Q119	8-729-026-30	TRANSISTOR 2SJ346-TE85L	
Q120	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R001	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R002	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R003	1-216-818-11	METAL CHIP 560 5% 1/16W	
R004	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	
R005	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R006	1-216-818-11	METAL CHIP 560 5% 1/16W	
R007	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R008	1-218-825-11	METAL GLAZE 120 0.50% 1/16W	
R009	1-218-845-11	METAL CHIP 820 0.50% 1/16W	
R010	1-218-863-11	METAL CHIP 4.7K 0.50% 1/16W	
R011	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R012	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R013	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R014	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R015	1-216-807-11	METAL CHIP 68 5% 1/16W	
R016	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R101	1-216-864-11	METAL CHIP 0 5% 1/16W	
R103	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R104	1-216-818-11	METAL CHIP 560 5% 1/16W	
R105	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R106	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R107	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R108	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R109	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R110	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R111	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R113	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R114	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R115	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R116	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R117	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R118	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R119	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R120	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R121	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	

Ref. No.	Part No.	Description	Remarks
R122	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R123	1-216-812-11	METAL CHIP 180 5% 1/16W	
R124	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R125	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R126	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R127	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R128	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R129	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R130	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R131	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R132	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R133	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R135	1-216-864-11	METAL CHIP 0 5% 1/16W	
R136	1-216-816-11	METAL CHIP 390 5% 1/16W	
R138	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R143	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R148	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R149	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R151	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R152	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R153	1-216-818-11	METAL CHIP 560 5% 1/16W	
R154	1-216-817-11	METAL CHIP 470 5% 1/16W	
R155	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R156	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R157	1-216-854-11	METAL CHIP 560K 5% 1/16W	
R158	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R159	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R160	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R161	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R162	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R164	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R165	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R166	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R167	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R168	1-216-864-11	METAL CHIP 0 5% 1/16W	
R169	1-216-864-11	METAL CHIP 0 5% 1/16W	
R170	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R171	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R172	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R173	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R174	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R175	1-220-397-11	METAL GLAZE 4.7M 5% 1/16W	
R176	1-216-864-11	METAL CHIP 0 5% 1/16W	
R177	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R178	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R179	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R180	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R181	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R182	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R183	1-216-833-11	METAL CHIP 10K 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R184	1-216-834-11	METAL CHIP	12K	5%	1/16W
R185	1-216-833-11	METAL CHIP	10K	5%	1/16W
R186	1-216-839-11	METAL CHIP	33K	5%	1/16W
R187	1-216-837-11	METAL CHIP	22K	5%	1/16W
R188	1-216-845-11	METAL CHIP	100K	5%	1/16W
R189	1-216-840-11	METAL CHIP	39K	5%	1/16W
R190	1-216-840-11	METAL CHIP	39K	5%	1/16W
R191	1-216-837-11	METAL CHIP	22K	5%	1/16W
R192	1-216-857-11	METAL CHIP	1M	5%	1/16W
R193	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R194	1-216-857-11	METAL CHIP	1M	5%	1/16W
R196	1-216-864-11	METAL CHIP	0	5%	1/16W
R197	1-216-840-11	METAL CHIP	39K	5%	1/16W
R198	1-216-840-11	METAL CHIP	39K	5%	1/16W
R199	1-216-817-11	METAL CHIP	470	5%	1/16W
R200	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R201	1-216-837-11	METAL CHIP	22K	5%	1/16W
R202	1-216-807-11	METAL CHIP	68	5%	1/16W
R203	1-216-807-11	METAL CHIP	68	5%	1/16W
R204	1-216-807-11	METAL CHIP	68	5%	1/16W
R208	1-216-864-11	METAL CHIP	0	5%	1/16W
R210	1-216-845-11	METAL CHIP	100K	5%	1/16W
R211	1-218-877-11	METAL CHIP	18K	0.50%	1/16W
R212	1-218-877-11	METAL CHIP	18K	0.50%	1/16W
R213	1-216-837-11	METAL CHIP	22K	5%	1/16W
R214	1-218-889-11	METAL CHIP	56K	0.50%	1/16W
R215	1-218-889-11	METAL CHIP	56K	0.50%	1/16W
R216	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R217	1-216-864-11	METAL CHIP	0	5%	1/16W
R218	1-216-837-11	METAL CHIP	22K	5%	1/16W
R219	1-216-819-11	METAL CHIP	680	5%	1/16W
R220	1-216-819-11	METAL CHIP	680	5%	1/16W
R221	1-216-864-11	METAL CHIP	0	5%	1/16W
R222	1-216-864-11	METAL CHIP	0	5%	1/16W
R223	1-216-864-11	METAL CHIP	0	5%	1/16W
R224	1-216-821-11	METAL CHIP	1K	5%	1/16W
R225	1-216-821-11	METAL CHIP	1K	5%	1/16W
R227	1-216-841-11	METAL CHIP	47K	5%	1/16W
R231	1-216-864-11	METAL CHIP	0	5%	1/16W
R233	1-216-864-11	METAL CHIP	0	5%	1/16W
R234	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R235	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R236	1-216-842-11	METAL CHIP	56K	5%	1/16W
R237	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R238	1-216-841-11	METAL CHIP	47K	5%	1/16W
R239	1-216-820-11	METAL CHIP	820	5%	1/16W
R241	1-216-843-11	METAL CHIP	68K	5%	1/16W
R242	1-216-838-11	METAL CHIP	27K	5%	1/16W
R243	1-216-849-11	METAL CHIP	220K	5%	1/16W
R244	1-216-833-11	METAL CHIP	10K	5%	1/16W
R245	1-216-838-11	METAL CHIP	27K	5%	1/16W
R246	1-216-819-11	METAL CHIP	680	5%	1/16W
R250	1-216-837-11	METAL CHIP	22K	5%	1/16W
R251	1-216-837-11	METAL CHIP	22K	5%	1/16W

< TRANSFORMER >

Ref. No.	Part No.	Description
T001	1-427-915-11	TRANSFORMER, INVERTER

< VIBRATOR >

Ref. No.	Part No.	Description
X101	1-579-661-21	OSCILLATOR, CRYSTAL 4.43MHz

A-7066-557-A SE-41P BOARD, COMPLETE
****

(Ref.No.1,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C401	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C402	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C403	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C404	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C405	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C408	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C409	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C410	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C411	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C412	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C413	1-128-257-21	ELECT CHIP	33uF	20%	10V
C414	1-128-257-21	ELECT CHIP	33uF	20%	10V
C415	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C416	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C417	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C418	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
CN401	1-573-346-21	CONNECTOR, FFC/FPC 6P

< IC >

Ref. No.	Part No.	Description
IC401	8-759-080-34	IC TA75W01FU-TE12R
IC402	8-759-058-45	IC NJM3403AV(TE2)
IC403	8-759-234-77	IC TC4S66F
IC404	8-759-234-77	IC TC4S66F

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R401	1-216-803-11	METAL CHIP	33	5%	1/16W
R402	1-216-841-11	METAL CHIP	47K	5%	1/16W
R403	1-216-841-11	METAL CHIP	47K	5%	1/16W
R404	1-216-803-11	METAL CHIP	33	5%	1/16W
R405	1-216-841-11	METAL CHIP	47K	5%	1/16W
R406	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W
R408	1-216-841-11	METAL CHIP	47K	5%	1/16W
R409	1-216-833-11	METAL CHIP	10K	5%	1/16W
R410	1-216-833-11	METAL CHIP	10K	5%	1/16W
R411	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R412	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R413	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R414	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
R415	1-216-835-11	METAL CHIP	15K	5%	1/16W
R416	1-216-852-11	METAL CHIP	390K	5%	1/16W
R417	1-216-852-11	METAL CHIP	390K	5%	1/16W
R418	1-216-835-11	METAL CHIP	15K	5%	1/16W
R419	1-216-837-11	METAL CHIP	22K	5%	1/16W
R420	1-216-837-11	METAL CHIP	22K	5%	1/16W

< SENSOR >

SE401	1-810-725-71	SENSOR, ANGULAR VELOCITY (PITCH)
SE402	1-810-725-81	SENSOR, ANGULAR VELOCITY (YAW)

A-7072-251-A TB-27 BOARD, COMPLETE
****
(Ref.No.2,000 Seriese)

< CONNECTOR >

* CN860	1-580-056-21	PIN, CONNECTOR 3P

A-7066-555-A VC-158 BOARD, COMPLETE
****
(Ref.No.2,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C351	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C352	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C353	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C354	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C355	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C356	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C357	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C358	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C359	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C360	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C361	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C362	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C363	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C601	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C602	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C603	1-164-346-11	CERAMIC CHIP	1uF		16V
C604	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C605	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C606	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C608	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C609	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C610	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C611	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C612	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C613	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C614	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C615	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C617	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C618	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C619	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C620	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C621	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C622	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C623	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C624	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C625	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C626	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C629	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C630	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C631	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C632	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C633	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C634	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C636	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C637	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C638	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C639	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C640	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C642	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C643	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C651	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C652	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C654	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C655	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C656	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C659	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C660	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C661	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C662	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C663	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C665	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C668	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C669	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C670	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C671	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C672	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C673	1-162-943-11	CERAMIC CHIP	15PF	5%	50V

VC-158

Ref. No.	Part No.	Description			Remarks
C674	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C676	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C677	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C678	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C681	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C682	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C685	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C686	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C687	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C689	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C751	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C752	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C753	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C754	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C755	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C756	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C758	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C759	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C760	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C763	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C764	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C765	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C766	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C767	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C768	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C770	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C771	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C772	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C773	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C774	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C775	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C776	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C777	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C778	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C779	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C780	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C781	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C782	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C790	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C852	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C855	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C862	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C870	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN601	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN653	1-573-362-11	CONNECTOR, FFC/EPC 22P	
CN654	1-573-362-11	CONNECTOR, FFC/EPC 22P	
CN751	1-750-346-21	CONNECTOR, FFC/EPC (ZIF) 6P	
CN752	1-766-356-21	CONNECTOR, FFC/FPC 26P	
CN850	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN851	1-766-347-21	CONNECTOR, FFC/FPC 17P	
CN852	1-766-336-21	CONNECTOR, FFC/FPC 6P	

< TRIMMER >

Ref. No.	Part No.	Description	Remarks
CT601	1-141-356-11	CAP, ADJ	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D601	8-719-404-49	DIODE MA111	
D602	8-719-404-49	DIODE MA111	
D603	8-719-404-49	DIODE MA111	
D604	8-719-404-49	DIODE MA111	
D752	8-719-404-49	DIODE MA111	
D852	8-719-404-49	DIODE MA111	
D853	8-719-404-49	DIODE MA111	
D855	8-719-404-49	DIODE MA111	

< FILTER >

Ref. No.	Part No.	Description	Remarks
FL651	1-239-352-11	FILTER, LOW PASS	

< IC >

Ref. No.	Part No.	Description	Remarks
IC351	8-752-856-78	IC CXP87132-021R	
IC352	8-759-297-76	IC CXD2152AREL	
IC353	8-759-281-20	IC CXD2149R-T4	
IC354	8-759-281-23	IC CXD2159TM	
IC355	8-759-248-78	IC MB88102PFV-G-BND-ER	
IC601	8-752-372-14	IC CXD1267AN-T4	
IC602	8-752-365-73	IC CXD2405R-T4	
IC603	8-752-069-21	IC CXA1690Q-T4	
IC604	8-752-373-69	IC CXD2407BR-T4	
IC605	8-759-070-51	IC SN74HCU04ADB	
IC606	8-759-064-36	IC MB88346BPFV	
IC652	8-752-376-21	IC CXD2151AR-T6	
IC653	8-759-346-79	IC MC68HC11M2FU-SC406826	
IC655	8-752-374-94	IC CXD2150BR-T6	
IC656	8-759-262-36	IC CXD2133BR-T6	
IC657	8-759-278-57	IC AK6420HF-E2	
IC751	8-752-860-73	IC CXP87132-027R	
IC752	8-759-338-78	IC BA10324AFV-E2	
IC753	8-752-365-65	IC CXD2126N-T4	
IC754	8-759-058-45	IC NJM3403AV	
IC755	8-759-998-98	IC LM358D	
IC756	8-759-338-78	IC BA10324AFV-E2	
IC758	8-759-058-41	IC NJM3416V	
IC759	8-759-058-47	IC MPC1724VM	

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L351	1-412-939-11	INDUCTOR 1uH	
L352	1-414-078-11	INDUCTOR 10uH	
L353	1-414-078-11	INDUCTOR 10uH	
L354	1-414-078-11	INDUCTOR 10uH	
L355	1-414-078-11	INDUCTOR 10uH	
L356	1-414-078-11	INDUCTOR 10uH	
L357	1-414-078-11	INDUCTOR 10uH	
L601	1-412-029-11	INDUCTOR CHIP 10uH	
L602	1-412-029-11	INDUCTOR CHIP 10uH	
L603	1-412-029-11	INDUCTOR CHIP 10uH	
L604	1-412-029-11	INDUCTOR CHIP 10uH	
L656	1-412-979-21	INDUCTOR 1uH	
L657	1-412-979-21	INDUCTOR 1uH	
L658	1-414-117-11	INDUCTOR 1uH	
L659	1-414-117-11	INDUCTOR 1uH	
L660	1-414-117-11	INDUCTOR 1uH	
L661	1-412-029-11	INDUCTOR CHIP 10uH	
L662	1-412-006-31	INDUCTOR CHIP 10uH	
L663	1-412-029-11	INDUCTOR CHIP 10uH	
L664	1-412-961-11	INDUCTOR 68uH	
L666	1-412-006-31	INDUCTOR CHIP 10uH	
L667	1-412-029-11	INDUCTOR CHIP 10uH	
L751	1-414-078-11	INDUCTOR 10uH	
L752	1-414-078-11	INDUCTOR 10uH	
L753	1-414-078-11	INDUCTOR 10uH	
L754	1-414-078-11	INDUCTOR 10uH	
L755	1-414-078-11	INDUCTOR 10uH	
L761	1-414-117-11	INDUCTOR 1uH	
L762	1-414-117-11	INDUCTOR 1uH	
		< TRANSISTOR >	
Q601	8-729-427-70	TRANSISTOR XP4401	
Q651	8-729-425-50	TRANSISTOR 2SB1462Q	
Q652	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q653	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q654	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q751	8-729-403-35	TRANSISTOR UN5113	
Q752	8-729-602-21	TRANSISTOR 2SC4154	
Q753	8-729-602-21	TRANSISTOR 2SC4154	
Q850	8-729-429-18	TRANSISTOR UN9213	
Q851	8-729-428-88	TRANSISTOR UN9113	
Q852	8-729-824-34	TRANSISTOR 2SJ187	
Q853	8-729-429-18	TRANSISTOR UN9213	
Q854	8-729-429-18	TRANSISTOR UN9213	
Q855	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q857	8-729-425-50	TRANSISTOR 2SB1462Q	
Q860	8-729-429-18	TRANSISTOR UN9213	
Q861	8-729-429-18	TRANSISTOR UN9213	
Q862	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q865	8-729-428-88	TRANSISTOR UN9113	
Q866	8-729-427-46	TRANSISTOR XP4213	
Q867	8-729-427-16	TRANSISTOR XP4113-TXE	
		< RESISTOR >	
R351	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R352	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R353	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R355	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R356	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R370	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R371	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R372	1-218-990-11	CONDCTOR, CHIP (1005)	
R374	1-218-990-11	CONDCTOR, CHIP (1005)	
R601	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R602	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R603	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R604	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R605	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R606	1-218-876-11	METAL CHIP 16K 0.50% 1/16W	
R607	1-218-990-11	CONDCTOR, CHIP (1005)	
R610	1-218-990-11	CONDCTOR, CHIP (1005)	
R612	1-218-943-11	METAL GLAZE 150 5% 1/16W	
R613	1-218-955-11	METAL GLAZE 1.5K 5% 1/16W	
R614	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R615	1-218-990-11	CONDCTOR, CHIP (1005)	
R616	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R617	1-218-990-11	CONDCTOR, CHIP (1005)	
R619	1-218-990-11	CONDCTOR, CHIP (1005)	
R620	1-218-990-11	CONDCTOR, CHIP (1005)	
R621	1-218-990-11	CONDCTOR, CHIP (1005)	
R624	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R627	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R628	1-218-990-11	CONDCTOR, CHIP (1005)	
R651	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R655	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R658	1-218-947-11	METAL GLAZE 330 5% 1/16W	
R659	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R660	1-218-990-11	CONDCTOR, CHIP (1005)	
R661	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R662	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R664	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R665	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R666	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R667	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R668	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R669	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R670	1-218-990-11	CONDCTOR, CHIP (1005)	
R671	1-208-455-11	METAL GLAZE 5.6 5% 1/16W	
R673	1-218-973-11	METAL GLAZE 47K 5% 1/16W	

Ref. No.	Part No.	Description				Remarks
R674	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R675	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R676	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R678	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R679	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R680	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R682	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R683	1-218-976-11	METAL GLAZE	82K	5%	1/16W	
R684	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R685	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R686	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R687	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R688	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R689	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R690	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R691	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R692	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R693	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R694	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R695	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W	
R696	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R697	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R698	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R699	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R701	1-218-990-11	CONDCTOR, CHIP	(1005)			
R702	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R703	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R705	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R706	1-218-990-11	CONDCTOR, CHIP	(1005)			
R708	1-218-990-11	CONDCTOR, CHIP	(1005)			
R712	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R713	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R714	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R715	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R716	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R717	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R718	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R719	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R720	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R721	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R722	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R723	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R724	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R725	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R726	1-218-990-11	CONDCTOR, CHIP	(1005)			
R727	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R728	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R729	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R730	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R731	1-218-990-11	CONDCTOR, CHIP	(1005)			

Ref. No.	Part No.	Description				Remarks
R732	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R733	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R751	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R752	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R753	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R754	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R755	1-218-835-11	METAL GLAZE	330	0.50%	1/16W	
R756	1-218-875-11	METAL CHIP	15K	0.50%	1/16W	
R757	1-218-875-11	METAL CHIP	15K	0.50%	1/16W	
R758	1-218-835-11	METAL GLAZE	330	0.50%	1/16W	
R759	1-218-835-11	METAL GLAZE	330	0.50%	1/16W	
R760	1-218-875-11	METAL CHIP	15K	0.50%	1/16W	
R761	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R762	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R763	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R764	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R765	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R766	1-218-937-11	METAL GLAZE	47	5%	1/16W	
R767	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R768	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R769	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R770	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R771	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R772	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R773	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R774	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R775	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R776	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R777	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R778	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R779	1-218-990-11	CONDCTOR, CHIP	(1005)			
R781	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R783	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R786	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R787	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R788	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R789	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R790	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R791	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R792	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R793	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R794	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R797	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R798	1-218-947-11	METAL GLAZE	330	5%	1/16W	
R800	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R802	1-216-001-00	METAL CHIP	10	5%	1/10W	
R803	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R804	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R850	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R851	1-218-989-11	METAL GLAZE	1M	5%	1/16W	

Ref. No.	Part No.	Description	Remarks
R852	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R853	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R854	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R857	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R858	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R860	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R861	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R862	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R867	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R868	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R870	1-218-941-11	METAL GLAZE 100 5% 1/16W	
		< CONPOSITION CIRCUIT BLOCK >	
RB751	1-236-432-11	NETWORK, RES 47K	
		< VIBRATOR >	
X351	1-579-553-11	VIBRATOR 12MHz	
X601	1-760-321-11	VIBRATOR, CRYSTAL 28.375MHz	
X651	1-579-669-11	VIBRATOR, LITIUM NIOBATE 16MHz	
X751	1-579-553-11	VIBRATOR 12MHz	

A-7072-341-A VF-78 BOARD, COMPLETE
****
(Ref.No.3,000 Seriese)

Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >	
C851	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C852	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C853	1-104-916-11	TANTAL. CHIP 6.8uF 20% 20V	
C854	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C855	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C856	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C857	1-164-676-11	CERAMIC CHIP 2200PF 5% 16V	
C858	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C859	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C860	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C865	1-164-816-11	CERAMIC CHIP 220PF 2% 50V	
C867	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C868	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C869	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C870	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C871	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C872	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C873	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C874	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C875	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C876	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C877	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN851	1-766-347-21	CONNECTOR, FFC/FPC 17P	
CN852	1-766-350-21	CONNECTOR, FFC/FPC 20P	
* CN853	1-573-333-21	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D851	8-719-951-20	LED BR1102W	
D852	8-719-043-70	DIODE MA6S121-(TX)	
D853	8-719-802-36	DIODE 1SS250	
		< IC >	
IC851	8-759-097-75	IC MB3789PFV-G-BND	
IC852	8-759-510-71	IC BA10358F-E2	
IC853	8-759-080-34	IC TA75W01FU	
IC854	8-759-082-60	IC TC7S66FU-TE85L	
IC855	8-759-338-78	IC BA10324AFV-E2	
IC857	8-759-079-66	IC TC74VHC123AFS(EL)	
		< COIL >	
L853	1-412-033-11	INDUCTOR CHIP 220uH	
L854	1-412-951-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q851	8-729-808-01	TRANSISTOR 2SD1622-S	
Q852	8-729-427-74	TRANSISTOR XP4601	
Q853	8-729-924-19	TRANSISTOR DTA123JU	
Q854	8-729-905-12	TRANSISTOR DTA144EU	
Q855	8-729-402-42	TRANSISTOR UN5213	
Q856	8-729-905-12	TRANSISTOR DTA144EU	
Q857	8-729-426-30	TRANSISTOR XP1213-TXE	
Q858	8-729-426-30	TRANSISTOR XP1213-TXE	
Q859	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
		< RESISTOR >	
R832	1-216-864-11	METAL CHIP 0 5% 1/16W	
R835	1-216-864-11	METAL CHIP 0 5% 1/16W	
R836	1-216-804-11	METAL CHIP 39 5% 1/16W	
R840	1-216-864-11	METAL CHIP 0 5% 1/16W	
R842	1-216-864-11	METAL CHIP 0 5% 1/16W	
R845	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R849	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R850	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R851	1-216-819-11	METAL CHIP 680 5% 1/16W	
R852	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R853	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R854	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	
R855	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R856	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R857	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	

Ref. No.	Part No.	Description			Remarks
R858	1-216-841-11	METAL CHIP	47K	5%	1/16W
R859	1-216-848-11	METAL CHIP	180K	5%	1/16W
R860	1-216-841-11	METAL CHIP	47K	5%	1/16W
R861	1-216-843-11	METAL CHIP	68K	5%	1/16W
R862	1-216-838-11	METAL CHIP	27K	5%	1/16W
R863	1-216-847-11	METAL CHIP	150K	5%	1/16W
R864	1-216-840-11	METAL CHIP	39K	5%	1/16W
R865	1-216-841-11	METAL CHIP	47K	5%	1/16W
R867	1-216-850-11	METAL CHIP	270K	5%	1/16W
R868	1-216-864-11	METAL CHIP	0	5%	1/16W
R869	1-216-843-11	METAL CHIP	68K	5%	1/16W
R870	1-216-842-11	METAL CHIP	56K	5%	1/16W
R871	1-216-850-11	METAL CHIP	270K	5%	1/16W
R872	1-216-833-11	METAL CHIP	10K	5%	1/16W
R873	1-216-851-11	METAL CHIP	330K	5%	1/16W
R874	1-216-847-11	METAL CHIP	150K	5%	1/16W
R875	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R876	1-216-833-11	METAL CHIP	10K	5%	1/16W
R877	1-216-794-11	METAL CHIP	5.6	5%	1/16W
R878	1-216-842-11	METAL CHIP	56K	5%	1/16W
R879	1-216-837-11	METAL CHIP	22K	5%	1/16W
R880	1-216-845-11	METAL CHIP	100K	5%	1/16W
R881	1-216-853-11	METAL CHIP	470K	5%	1/16W
R882	1-216-821-11	METAL CHIP	1K	5%	1/16W
R883	1-216-840-11	METAL CHIP	39K	5%	1/16W
R884	1-216-845-11	METAL CHIP	100K	5%	1/16W
R885	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R886	1-216-839-11	METAL CHIP	33K	5%	1/16W
R887	1-216-842-11	METAL CHIP	56K	5%	1/16W
R888	1-216-857-11	METAL CHIP	1M	5%	1/16W
R889	1-216-845-11	METAL CHIP	100K	5%	1/16W
R890	1-216-844-11	METAL CHIP	82K	5%	1/16W
R891	1-216-296-91	CONDUCTOR, CHIP	(3216)		
R892	1-216-158-00	METAL GLAZE	22	5%	1/8W
R893	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R894	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R895	1-216-833-11	METAL CHIP	10K	5%	1/16W
R896	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R897	1-216-864-11	METAL CHIP	0	5%	1/16W
R898	1-216-842-11	METAL CHIP	56K	5%	1/16W
R899	1-216-845-11	METAL CHIP	100K	5%	1/16W
		< VARIABLE RESISTOR >			
RV851	1-241-479-11	RES, ADJ, CERMET 22K			

Ref. No.	Part No.	Description			Remarks
	A-7072-342-A	VF-79 BOARD, COMPLETE			
		**********************			
		(Ref.No.3,000 Seriese)			
		< CAPACITOR >			
C901	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C902	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C903	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C904	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C905	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C906	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C907	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C908	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C909	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C910	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C911	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C912	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C913	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C914	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C915	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C916	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C917	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C918	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C920	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C921	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C922	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C923	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C924	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C925	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C926	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C927	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C928	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C929	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C930	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C931	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C933	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C934	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C935	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C936	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C937	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C938	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C939	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C940	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C941	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C942	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C943	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C945	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C946	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C947	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C948	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C949	1-135-178-11	TANTAL. CHIP	1.5uF	20%	20V
C950	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C951	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C952	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C953	1-164-346-11	CERAMIC CHIP	1uF		16V
C954	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C955	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C956	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN901	1-766-346-21	CONNECTOR, FFC/FPC 16P
* CN902	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P
CN903	1-766-346-21	CONNECTOR, FFC/FPC 16P

< DIODE >

Ref. No.	Part No.	Description	
D901	8-713-102-80	DIODE	1T369-01-T8A
D902	8-713-102-80	DIODE	1T369-01-T8A
D903	8-719-404-49	DIODE	MA111

< IC >

Ref. No.	Part No.	Description	
IC901	8-752-067-59	IC	CXA1785R-T4
IC902	8-752-371-14	IC	CXD2403AR-T4
IC903	8-759-251-40	IC	MB88E346PFV-G-BND-ER
IC904	8-759-075-66	IC	TA75S01F(TE85L)

< COIL >

Ref. No.	Part No.	Description
L901	1-412-951-11	INDUCTOR 10uH
L902	1-412-960-21	INDUCTOR 56uH
L903	1-412-956-21	INDUCTOR 27uH
L904	1-412-959-11	INDUCTOR 47uH
L905	1-412-949-21	INDUCTOR 6.8uH
L906	1-412-962-11	INDUCTOR 82uH

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q901	8-729-427-74	TRANSISTOR	XP4601
Q902	8-729-402-42	TRANSISTOR	UN5213
Q903	8-729-230-63	TRANSISTOR	2SC4116-YG
Q903	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q904	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q904	8-729-420-24	TRANSISTOR	2SB1218A-QRS

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R902	1-218-877-11	METAL CHIP	18K	0.50%	1/16W
R903	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R904	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R905	1-218-941-11	METAL GLAZE	100	5%	1/16W
R906	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R907	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R908	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R910	1-218-946-11	METAL GLAZE	270	5%	1/16W
R911	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R912	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R913	1-220-397-11	METAL GLAZE	4.7M	5%	1/16W
R914	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R915	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R918	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R919	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R920	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R921	1-220-397-11	METAL GLAZE	4.7M	5%	1/16W
R922	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R923	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R924	1-218-952-11	METAL GLAZE	820	5%	1/16W
R925	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R926	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R930	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R931	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R932	1-218-990-11	CONDCTOR, CHIP	(1005)		
R934	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R935	1-218-990-11	CONDCTOR, CHIP	(1005)		
R936	1-218-873-11	METAL CHIP	12K	0.50%	1/16W
R937	1-218-905-11	METAL CHIP	270K	0.50%	1/16W
R938	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R939	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R945	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R946	1-218-990-11	CONDCTOR, CHIP	(1005)		
R947	1-218-939-11	METAL GLAZE	68	5%	1/16W
R948	1-218-939-11	METAL GLAZE	68	5%	1/16W
R949	1-218-939-11	METAL GLAZE	68	5%	1/16W
R950	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R953	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R954	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R955	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R959	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R960	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R961	1-218-982-11	METAL GLAZE	270K	5%	1/16W
R969	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R970	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R971	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R973	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R974	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R975	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R976	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R979	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R980	1-218-990-11	CONDCTOR, CHIP	(1005)		

< VIBRATOR >

Ref. No.	Part No.	Description
X901	1-579-661-21	OSCILLATOR, CRYSTAL 4.43MHz

VS-113

Ref. No.	Part No.	Description			Remarks
	A-7066-554-A	VS-113 BOARD, COMPLETE			
		***********************			
		(Ref.No.4,000 Seriese)			
		< CAPACITOR >			
C001	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C002	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C003	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C004	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C005	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C006	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C007	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C008	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C009	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C010	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C011	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C012	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C013	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C014	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C015	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C016	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C017	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C019	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C020	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C021	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C022	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C024	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C025	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C026	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C027	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C028	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C031	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C032	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C037	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C038	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C039	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C040	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C041	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C042	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C043	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C044	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C045	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C046	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C047	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C050	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C051	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C052	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C054	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C057	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C058	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C059	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C060	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C061	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C063	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C064	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C065	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C066	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C067	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C068	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C071	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C072	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C073	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C076	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C077	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C078	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C079	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C082	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C083	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C084	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C085	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C086	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C087	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C088	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C089	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C101	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C102	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C103	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C104	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C105	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C106	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C107	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C108	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C109	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C110	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C111	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C112	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C113	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C114	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C115	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C116	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C117	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C118	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C119	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C120	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C121	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C122	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C123	1-164-460-11	CERAMIC CHIP	62PF	5%	50V
C124	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C125	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C126	1-162-918-11	CERAMIC CHIP	18PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C127	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C130	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C131	1-164-460-11	CERAMIC CHIP	62PF	5%	50V
C132	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C133	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C134	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C137	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C139	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C140	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C141	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C142	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C143	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C144	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C145	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C146	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C147	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C148	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C150	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C151	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C152	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C153	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C154	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C155	1-164-238-11	CERAMIC CHIP	36PF	5%	50V
C156	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C157	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C158	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C159	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C160	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C161	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C162	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C164	1-163-077-91	CERAMIC CHIP	0.1uF		50V
C201	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C202	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C203	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C204	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C205	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C206	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C207	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C210	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C211	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C212	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C213	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C214	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C215	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C216	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C217	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C218	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C219	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C221	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C222	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C223	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C224	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C225	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C226	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C227	1-135-176-21	TANTALUM CHIP	0.68uF	10%	20V
C228	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C229	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C230	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C231	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C235	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C236	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C237	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C238	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C240	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C241	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C243	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C244	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C245	1-135-318-11	TANTAL. CHIP	33uF	20%	4V
C246	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C247	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C248	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C249	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C250	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C251	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C252	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C253	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C254	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C256	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C258	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C259	1-164-346-11	CERAMIC CHIP	1uF		16V
C261	1-135-180-21	TANTAL. CHIP	3.3uF	10%	10V
C262	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C263	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C265	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C266	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C268	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C269	1-135-211-11	TANTALUM CHIP	6.8uF	20%	6.3V
C270	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C271	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C274	1-164-346-11	CERAMIC CHIP	1uF		16V
C275	1-135-180-21	TANTAL. CHIP	3.3uF	10%	10V
C276	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C277	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C279	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C280	1-135-211-11	TANTALUM CHIP	6.8uF	20%	6.3V
C281	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C283	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C284	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C286	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C287	1-135-201-11	TANTALUM CHIP	10uF	20%	4V

VS-113

Ref. No.	Part No.	Description			Remarks
C288	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C289	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C290	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C291	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C292	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C294	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C298	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C300	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C301	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C302	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C303	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C304	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C305	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C306	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C307	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C309	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C310	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C311	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C312	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C313	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C314	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C315	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C316	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C318	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C319	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C320	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C321	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C323	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C325	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C329	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C331	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C332	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C381	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C382	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C383	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C384	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C385	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C386	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C387	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C388	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C389	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C390	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C391	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C392	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C407	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C410	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C411	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C412	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C413	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C414	1-164-005-11	CERAMIC CHIP	0.47uF		25V

Ref. No.	Part No.	Description			Remarks
C415	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C420	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C422	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C423	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C424	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C425	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C426	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C428	1-135-149-21	TANTAL. CHIP	2.2uF	10%	10V
C429	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C432	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C434	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C435	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C436	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C437	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C438	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C439	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C440	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C442	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C443	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C481	1-162-638-11	CERAMIC CHIP	1uF		16V
C491	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C501	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C503	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C504	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C505	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C506	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C507	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C509	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C510	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C511	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C512	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C513	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C514	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C516	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C517	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C518	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C519	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C520	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C521	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C523	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C524	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C525	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C526	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C527	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C528	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C530	1-164-346-11	CERAMIC CHIP	1uF		16V
C531	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref. No.	Part No.	Description			Remarks
C532	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C533	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C534	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C535	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C536	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C537	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C538	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C539	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C540	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C541	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C542	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C543	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C545	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C546	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C548	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C551	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C552	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C553	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C554	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C555	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C556	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C557	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C558	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C561	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C562	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C563	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C564	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C565	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C703	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C704	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C705	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C707	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C708	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C709	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C710	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C711	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C713	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C714	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C715	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C716	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C717	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C718	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C719	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C720	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C721	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C722	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C724	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C725	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C801	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C802	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C803	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C804	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C805	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C811	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C813	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C814	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C815	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C816	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C818	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C819	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C820	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C822	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C825	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C827	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C830	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C832	1-107-493-11	TANTAL. CHIP	47uF	20%	2.5V
C835	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C837	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C839	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C840	1-107-493-11	TANTAL. CHIP	47uF	20%	2.5V
C843	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C844	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C845	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C847	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C849	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C851	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C852	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C854	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C857	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C858	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C860	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C861	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C862	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C865	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C868	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C870	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C872	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C879	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C882	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C910	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C948	1-164-346-11	CERAMIC CHIP	1uF		16V
C949	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C950	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C951	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C952	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C953	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C954	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C955	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C956	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C957	1-164-730-11	CERAMIC CHIP	0.0012uF	10%	50V

VS-113

Ref. No.	Part No.	Description	Remarks
C958	1-164-473-11	CERAMIC CHIP 820PF 10% 50V	
C959	1-164-174-11	CERAMIC CHIP 0.0082uF 10% 25V	
C960	1-164-172-11	CERAMIC CHIP 0.0056uF 10% 25V	
C961	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C962	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C963	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C964	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C965	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C966	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C967	1-104-913-11	TANTAL. CHIP 10uF 20% 16V	
C968	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C969	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C970	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C971	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C972	1-104-913-11	TANTAL. CHIP 10uF 20% 16V	
C973	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C974	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C975	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C976	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C978	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C979	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C980	1-107-689-21	TANTAL. CHIP 1uF 20% 35V	
C981	1-135-212-21	TANTAL. CHIP 2.2uF 20% 25V	
C982	1-135-212-21	TANTAL. CHIP 2.2uF 20% 25V	
C983	1-135-165-11	TANTAL. CHIP 33uF 20% 16V	
C984	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C985	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C986	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C987	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C988	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C989	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C990	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C991	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C992	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C993	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C994	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C995	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C996	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C997	1-104-913-11	TANTAL. CHIP 10uF 20% 16V	
C999	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN001	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN002	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P	
CN421	1-766-360-21	CONNECTOR, FFC/FPC 30P	
CN422	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN423	1-766-360-21	CONNECTOR, FFC/FPC 30P	
* CN501	1-580-055-21	PIN, CONNECTOR 2P	
CN502	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN503	1-764-704-21	CONNECTOR, FFC/FPC (LIF) 5P	
* CN504	1-750-338-11	CONNECTOR, FFC/FPC (ZIF) 12P	
CN505	1-766-832-21	CONNECTOR, FFC/FPC (ZIF) 15P	
CN701	1-766-352-21	CONNECTOR, FFC/FPC 21P	
CN702	1-766-352-21	CONNECTOR, FFC/FPC 21P	
CN702	1-766-633-11	CONNECTOR, FFC/FPC 22P	
CN703	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P	
CN801	1-766-836-21	CONNECTOR, FFC/FPC (ZIF) 27P	
* CN951	1-580-756-21	PIN, CONNECTOR 7P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D001	8-719-404-49	DIODE MA111	
D102	8-719-404-49	DIODE MA111	
D201	8-719-421-67	DIODE MA132WK	
D202	8-719-421-67	DIODE MA132WK	
D204	8-719-404-49	DIODE MA111	
D205	8-719-421-67	DIODE MA132WK	
D207	8-719-421-71	DIODE MA132WA	
D208	8-719-421-71	DIODE MA132WA	
D210	8-719-404-49	DIODE MA111	
D211	8-719-404-49	DIODE MA111	
D212	8-719-404-49	DIODE MA111	
D213	8-719-421-67	DIODE MA132WK	
D214	8-719-421-69	DIODE MA133	
D215	8-719-404-49	DIODE MA111	
D381	8-719-421-67	DIODE MA132WK	
D410	8-719-421-67	DIODE MA132WK	
D412	8-719-404-49	DIODE MA111	
D413	8-719-421-67	DIODE MA132WK	
D414	8-719-421-67	DIODE MA132WK	
D415	8-719-421-67	DIODE MA132WK	
D416	8-719-404-49	DIODE MA111	
D417	8-719-420-51	DIODE MA729	
D421	8-719-043-70	DIODE MA6S121-(TX)	
D422	8-719-421-67	DIODE MA132WK	
D423	8-719-404-49	DIODE MA111	
D424	8-719-421-71	DIODE MA132WA	
D501	8-719-404-49	DIODE MA111	
D702	8-719-404-49	DIODE MA111	
D703	8-719-421-67	DIODE MA132WK	
D706	8-719-040-57	DIODE 015Z8.2-XY-TPH3	
D707	8-719-421-27	DIODE MA728	
D708	8-719-420-51	DIODE MA729	
D709	8-719-404-49	DIODE MA111	
D801	8-719-404-49	DIODE MA111	
D951	8-719-027-77	DIODE MA796-TX	
D952	8-719-421-69	DIODE MA133-TX	
D953	8-719-404-49	DIODE MA111	

< FERRITE BEAD >

Ref. No.	Part No.	Description	Remarks
FB501	1-412-979-21	INDUCTOR 1UH	

Ref. No.	Part No.	Description	Remarks
		< FILTER >	
FL201	1-236-848-21	FILTER, LOW PASS	
FL202	1-239-010-11	FILTER, LOW PASS (CCD.PAL.Y)	
FL203	1-239-112-21	FILTER, LOW PASS (Y)	
FL204	1-236-775-11	FILTER, LOW PASS (DEM)	
FL481	1-411-165-21	COIL, OSC	
		< IC >	
IC001	8-752-071-76	IC CXA2004R-T6	
IC071	8-759-279-82	IC CXD2127R-T4	
IC101	8-752-058-02	IC CXA1509AR	
IC201	8-752-072-55	IC CXA1810AR-T6	
IC202	8-752-053-21	IC CXA1211M	
IC203	8-752-351-95	IC CXL1506N-T4	
IC204	8-752-351-95	IC CXL1506N-T4	
IC205	8-752-053-21	IC CXA1211M	
IC206	8-759-070-51	IC SN74HCU04ADB	
IC381	8-759-261-32	IC M52358VP-610D	
IC421	8-752-069-60	IC CXA1812Q-T4	
IC422	8-759-331-66	IC BA7627FV-E2	
IC423	8-759-082-61	IC TC4W53FU-TE12L	
IC481	8-759-340-33	IC uPD6461GS-815-GLG-E2	
IC491	8-759-290-12	IC M62370GP-650D	
IC501	8-752-847-38	IC CXP87132-042R	
IC502	8-759-165-47	IC MPC1780VFUEB	
IC503	8-759-169-11	IC CXA1575M-E2	
IC504	8-759-267-62	IC MB4470APFQ-G-BND-ER	
IC701	8-759-299-99	IC S-8423JFS-T2	
IC702	8-759-350-89	IC MB89098PFV-G-131-BND	
IC703	8-759-278-57	IC AK6420HF-E2	
IC801	8-759-075-68	IC TC4066BFS-EL	
IC802	8-759-330-00	IC AN3988NFHP-EB	
IC951	8-759-295-31	IC MB3799-03PFV-G-BND-ER	
		< COIL >	
L001	1-412-066-21	INDUCTOR CHIP 220uH	
L002	1-412-066-21	INDUCTOR CHIP 220uH	
L003	1-412-058-11	INDUCTOR CHIP 10uH	
L004	1-412-951-11	INDUCTOR 10uH	
L005	1-412-066-21	INDUCTOR CHIP 220uH	
L006	1-412-948-11	INDUCTOR 5.6uH	
L071	1-410-658-31	INDUCTOR CHIP 220uH	
L072	1-414-078-11	INDUCTOR 10uH	
L073	1-414-078-11	INDUCTOR 10uH	
L074	1-412-950-11	INDUCTOR 8.2uH	
L101	1-412-956-21	INDUCTOR 27uH	
L102	1-412-954-11	INDUCTOR 18uH	
L103	1-412-947-11	INDUCTOR 4.7uH	
L104	1-412-959-11	INDUCTOR 47uH	
L105	1-412-954-11	INDUCTOR 18uH	
L106	1-412-945-11	INDUCTOR 3.3uH	
L107	1-412-960-21	INDUCTOR 56uH	
L108	1-412-954-11	INDUCTOR 18uH	
L109	1-412-956-21	INDUCTOR 27uH	
L110	1-410-655-31	INDUCTOR CHIP 120uH	
L111	1-412-947-11	INDUCTOR 4.7uH	
L112	1-414-078-11	INDUCTOR 10uH	
L113	1-412-957-11	INDUCTOR 33uH	
L114	1-412-280-31	INDUCTOR 330uH	
L115	1-412-282-41	INDUCTOR 470uH	
L116	1-410-657-21	INDUCTOR CHIP 180uH	
L117	1-412-958-21	INDUCTOR 39uH	
L118	1-412-949-21	INDUCTOR 6.8uH	
L119	1-412-952-11	INDUCTOR 12uH	
L120	1-216-295-91	CONDUCTOR, CHIP (2012)	
L201	1-412-963-11	INDUCTOR 100uH	
L202	1-414-078-11	INDUCTOR 10uH	
L205	1-414-078-11	INDUCTOR 10uH	
L206	1-412-957-11	INDUCTOR 33uH	
L207	1-412-960-21	INDUCTOR 56uH	
L208	1-412-952-11	INDUCTOR 12uH	
L210	1-412-949-21	INDUCTOR 6.8uH	
L211	1-412-947-11	INDUCTOR 4.7uH	
L212	1-412-949-21	INDUCTOR 6.8uH	
L213	1-412-951-11	INDUCTOR 10uH	
L214	1-412-957-11	INDUCTOR 33uH	
L215	1-412-955-11	INDUCTOR 22uH	
L216	1-412-949-21	INDUCTOR 6.8uH	
L217	1-412-957-11	INDUCTOR 33uH	
L219	1-412-957-11	INDUCTOR 33uH	
L502	1-414-078-11	INDUCTOR 10uH	
L503	1-414-078-11	INDUCTOR 10uH	
L504	1-414-078-11	INDUCTOR 10uH	
L505	1-412-961-11	INDUCTOR 68uH	
L701	1-412-959-11	INDUCTOR 47uH	
L951	1-424-653-11	COIL, CHOKE 10uH	
L952	1-424-653-11	COIL, CHOKE 10uH	
L953	1-424-653-11	COIL, CHOKE 10uH	
L954	1-424-674-11	COIL, CHOKE 22uH	
L955	1-424-674-11	COIL, CHOKE 22uH	
L956	1-424-674-11	COIL, CHOKE 22uH	
L957	1-424-674-11	COIL, CHOKE 22uH	
L958	1-424-675-11	COIL, CHOKE 33uH	
L959	1-412-056-11	INDUCTOR CHIP 4.7uH	
L960	1-412-056-11	INDUCTOR CHIP 4.7uH	
L961	1-412-056-11	INDUCTOR CHIP 4.7uH	
L962	1-412-056-11	INDUCTOR CHIP 4.7uH	
L963	1-412-056-11	INDUCTOR CHIP 4.7uH	
L964	1-412-056-11	INDUCTOR CHIP 4.7uH	
L965	1-412-056-11	INDUCTOR CHIP 4.7uH	

VS-113

Ref. No.	Part No.	Description	Remarks
L966	1-412-056-11	INDUCTOR CHIP 4.7uH	
L967	1-412-066-21	INDUCTOR CHIP 220uH	
L971	1-412-056-11	INDUCTOR CHIP 4.7uH	
		< NETWORK RESISTOR >	
PB702	1-239-426-11	NETWORK RESISTOR (CHIP) 2.2K	
		< IC LINK >	
⚠PS951	1-576-124-11	RINK, IC 1A	
		< TRANSISTOR >	
Q001	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q002	8-729-429-18	TRANSISTOR UN9213	
Q003	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q004	8-729-429-18	TRANSISTOR UN9213	
Q005	8-729-429-18	TRANSISTOR UN9213	
Q006	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q007	8-729-429-18	TRANSISTOR UN9213	
Q008	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q009	8-729-425-73	TRANSISTOR 2SC4627-C	
Q010	8-729-429-18	TRANSISTOR UN9213	
Q011	8-729-427-46	TRANSISTOR XP4213	
Q012	8-729-429-18	TRANSISTOR UN9213	
Q013	8-729-428-88	TRANSISTOR UN9113	
Q014	8-729-425-64	TRANSISTOR 2SD2216Q	
Q015	8-729-425-50	TRANSISTOR 2SB1462Q	
Q016	8-729-425-50	TRANSISTOR 2SB1462Q	
Q017	8-729-425-64	TRANSISTOR 2SD2216Q	
Q018	8-729-425-50	TRANSISTOR 2SB1462Q	
Q022	8-729-429-18	TRANSISTOR UN9213	
Q071	8-729-425-50	TRANSISTOR 2SB1462Q	
Q072	8-729-927-99	TRANSISTOR 2SC4617TL-QR	
Q073	8-729-429-18	TRANSISTOR UN9213	
Q075	8-729-927-99	TRANSISTOR 2SC4617TL-QR	
Q076	8-729-428-84	TRANSISTOR UN9111	
Q077	8-729-425-73	TRANSISTOR 2SC4627-C	
Q078	8-729-015-66	TRANSISTOR 2SC4919	
Q102	8-729-429-18	TRANSISTOR UN9213	
Q103	8-729-425-64	TRANSISTOR 2SD2216Q	
Q104	8-729-429-18	TRANSISTOR UN9213	
Q108	8-729-429-18	TRANSISTOR UN9213	
Q109	8-729-425-64	TRANSISTOR 2SD2216Q	
Q110	8-729-425-64	TRANSISTOR 2SD2216Q	
Q111	8-729-425-64	TRANSISTOR 2SD2216Q	
Q112	8-729-425-73	TRANSISTOR 2SC4627-C	
Q113	8-729-425-50	TRANSISTOR 2SB1462Q	
Q114	8-729-425-73	TRANSISTOR 2SC4627-C	
Q115	8-729-429-18	TRANSISTOR UN9213	
Q117	8-729-429-18	TRANSISTOR UN9213	
Q118	8-729-425-64	TRANSISTOR 2SD2216Q	
Q201	8-729-425-50	TRANSISTOR 2SB1462Q	
Q202	8-729-425-64	TRANSISTOR 2SD2216Q	
Q203	8-729-427-46	TRANSISTOR XP4213	
Q204	8-729-428-88	TRANSISTOR UN9113	
Q205	8-729-427-46	TRANSISTOR XP4213	
Q206	8-729-429-18	TRANSISTOR UN9213	
Q207	8-729-428-88	TRANSISTOR UN9113	
Q208	8-729-015-68	TRANSISTOR 2SC4922-TL	
Q209	8-729-015-68	TRANSISTOR 2SC4922-TL	
Q210	8-729-425-50	TRANSISTOR 2SB1462Q	
Q211	8-729-425-64	TRANSISTOR 2SD2216Q	
Q212	8-729-429-18	TRANSISTOR UN9213	
Q213	8-729-427-72	TRANSISTOR XP4501	
Q214	8-729-427-46	TRANSISTOR XP4213	
Q216	8-729-425-64	TRANSISTOR 2SD2216Q	
Q217	8-729-428-88	TRANSISTOR UN9113	
Q218	8-729-427-46	TRANSISTOR XP4213	
Q219	8-729-429-18	TRANSISTOR UN9213	
Q220	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q221	8-729-425-50	TRANSISTOR 2SB1462Q	
Q222	8-729-425-64	TRANSISTOR 2SD2216Q	
Q224	8-729-425-50	TRANSISTOR 2SB1462Q	
Q225	8-729-425-64	TRANSISTOR 2SD2216Q	
Q226	8-729-429-18	TRANSISTOR UN9213	
Q227	8-729-425-50	TRANSISTOR 2SB1462Q	
Q228	8-729-429-18	TRANSISTOR UN9213	
Q229	8-729-429-18	TRANSISTOR UN9213	
Q230	8-729-429-18	TRANSISTOR UN9213	
Q231	8-729-425-73	TRANSISTOR 2SC4627-C	
Q234	8-729-425-73	TRANSISTOR 2SC4627-C	
Q235	8-729-028-13	TRANSISTOR 2SA1885-T106	
Q236	8-729-425-64	TRANSISTOR 2SD2216Q	
Q237	8-729-425-64	TRANSISTOR 2SD2216Q	
Q238	8-729-425-64	TRANSISTOR 2SD2216Q	
Q240	8-729-429-18	TRANSISTOR UN9213	
Q241	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q242	8-729-425-50	TRANSISTOR 2SB1462Q	
Q243	8-729-425-73	TRANSISTOR 2SC4627-C	
Q244	8-729-425-73	TRANSISTOR 2SC4627-C	
Q245	8-729-427-72	TRANSISTOR XP4501	
Q246	8-729-425-64	TRANSISTOR 2SD2216Q	
Q247	8-729-425-73	TRANSISTOR 2SC4627-C	
Q248	8-729-428-88	TRANSISTOR UN9113	
Q250	8-729-425-64	TRANSISTOR 2SD2216Q	
Q251	8-729-428-88	TRANSISTOR UN9113	
Q252	8-729-425-50	TRANSISTOR 2SB1462Q	
Q253	8-729-429-18	TRANSISTOR UN9213	
Q254	8-729-429-18	TRANSISTOR UN9213	
Q255	8-729-427-46	TRANSISTOR XP4213	
Q256	8-729-028-13	TRANSISTOR 2SA1885-T106	
Q257	8-729-428-88	TRANSISTOR UN9113	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
Q259	8-729-429-50	TRANSISTOR XP4312	
Q260	8-729-428-93	TRANSISTOR UN9115-QRS-(TXE)	
Q381	8-729-429-18	TRANSISTOR UN9213	
Q382	8-729-428-88	TRANSISTOR UN9113	
Q383	8-729-425-50	TRANSISTOR 2SB1462Q	
Q384	8-729-429-18	TRANSISTOR UN9213	
Q387	8-729-427-46	TRANSISTOR XP4213	
Q410	8-729-425-64	TRANSISTOR 2SD2216Q	
Q412	8-729-425-64	TRANSISTOR 2SD2216Q	
Q413	8-729-101-07	TRANSISTOR 2SB798-DL	
Q414	8-729-927-99	TRANSISTOR 2SC4617R	
Q415	8-729-425-64	TRANSISTOR 2SD2216Q	
Q416	8-729-429-14	TRANSISTOR UN9211	
Q417	8-729-425-50	TRANSISTOR 2SB1462Q	
Q419	8-729-427-23	TRANSISTOR XP4116-TXE	
Q420	8-729-425-64	TRANSISTOR 2SD2216Q	
Q421	8-729-015-66	TRANSISTOR 2SC4919	
Q422	8-729-015-66	TRANSISTOR 2SC4919	
Q423	8-729-015-66	TRANSISTOR 2SC4919	
Q424	8-729-429-50	TRANSISTOR XP4312	
Q425	8-729-429-50	TRANSISTOR XP4312	
Q426	8-729-427-23	TRANSISTOR XP4116-TXE	
Q427	8-729-429-18	TRANSISTOR UN9213	
Q428	8-729-425-46	TRANSISTOR XP4315-TXE	
Q429	8-729-429-32	TRANSISTOR UN9210-QRS	
Q502	8-729-427-70	TRANSISTOR XP4401	
Q503	8-729-425-64	TRANSISTOR 2SD2216Q	
Q504	8-729-425-64	TRANSISTOR 2SD2216Q	
Q507	8-729-427-72	TRANSISTOR XP4501	
Q704	8-729-427-51	TRANSISTOR RN1911-TE85R	
Q705	8-729-429-02	TRANSISTOR UN9110-QRS	
Q801	8-729-429-25	TRANSISTOR UN9216-QRS	
Q803	8-729-429-25	TRANSISTOR UN9216-QRS	
Q804	8-729-429-25	TRANSISTOR UN9216-QRS	
Q806	8-729-429-25	TRANSISTOR UN9216-QRS	
Q807	8-729-428-88	TRANSISTOR UN9113	
Q808	8-729-429-22	TRANSISTOR UN9215-QRS	
Q809	8-729-429-22	TRANSISTOR UN9215-QRS	
Q810	8-729-429-22	TRANSISTOR UN9215-QRS	
Q811	8-729-429-22	TRANSISTOR UN9215-QRS	
Q812	8-729-428-93	TRANSISTOR UN9115-QRS	
Q814	8-729-427-46	TRANSISTOR XP4213	
Q815	8-729-429-50	TRANSISTOR XP4312	
Q816	8-729-429-50	TRANSISTOR XP4312	
Q817	8-729-429-18	TRANSISTOR UN9213	
Q820	8-729-428-93	TRANSISTOR UN9115-QRS-(TXE)	
Q821	8-729-429-18	TRANSISTOR UN9213	
Q951	8-729-823-84	TRANSISTOR FP102	
Q952	8-729-823-82	TRANSISTOR FP101	
Q953	8-729-823-82	TRANSISTOR FP101	

Ref. No.	Part No.	Description	Remarks
Q954	8-729-015-60	TRANSISTOR 2SJ316	
Q955	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q956	8-729-429-18	TRANSISTOR UN9213	
Q957	8-729-425-50	TRANSISTOR 2SB1462Q	
Q958	8-729-427-72	TRANSISTOR XP4501	
Q959	8-729-427-70	TRANSISTOR XP4401	
Q960	8-729-425-64	TRANSISTOR 2SD2216Q	
Q961	8-729-427-70	TRANSISTOR XP4401	
Q962	8-729-402-81	TRANSISTOR XN4501	
Q963	8-729-823-84	TRANSISTOR FP102	
Q964	8-729-823-82	TRANSISTOR FP101	
Q965	8-729-017-61	TRANSISTOR 2SB1581	
Q966	8-729-425-50	TRANSISTOR 2SB1462Q	
Q967	8-729-427-72	TRANSISTOR XP4501	
Q968	8-729-427-42	TRANSISTOR XP4211	
Q969	8-729-427-12	TRANSISTOR RN2902-TE85R	
Q970	8-729-429-32	TRANSISTOR UN9210-QRS	
Q971	8-729-427-70	TRANSISTOR XP4401	
Q972	8-729-425-64	TRANSISTOR 2SD2216Q	
Q973	8-729-015-60	TRANSISTOR 2SJ316	
Q974	8-729-427-46	TRANSISTOR XP4213	
Q975	8-729-428-88	TRANSISTOR UN9113	

< RESISTOR >

Ref. No.	Part No.	Description				Remarks
R001	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R002	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R003	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R004	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R005	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R006	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R007	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R008	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R009	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R010	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R012	1-218-987-11	METAL GLAZE	680K	5%	1/16W	
R013	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R014	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R017	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R019	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R024	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R027	1-218-875-11	METAL CHIP	15K	0.50%	1/16W	
R028	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R029	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R031	1-218-978-11	METAL GLAZE	120K	5%	1/16W	
R033	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R037	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R038	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R039	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R041	1-218-950-11	METAL GLAZE	560	5%	1/16W	

VS-113

Ref. No.	Part No.	Description			Remarks
R042	1-218-948-11	METAL GLAZE	390	5%	1/16W
R043	1-218-929-11	METAL GLAZE	10	5%	1/16W
R044	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R045	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R046	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R047	1-218-936-11	METAL GLAZE	39	5%	1/16W
R048	1-218-950-11	METAL GLAZE	560	5%	1/16W
R049	1-218-933-11	METAL GLAZE	22	5%	1/16W
R050	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R051	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R052	1-218-946-11	METAL GLAZE	270	5%	1/16W
R053	1-218-945-11	METAL GLAZE	220	5%	1/16W
R054	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R055	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R056	1-218-929-11	METAL GLAZE	10	5%	1/16W
R057	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R058	1-218-990-11	CONDCTOR, CHIP	(1005)		
R059	1-218-990-11	CONDCTOR, CHIP	(1005)		
R064	1-218-990-11	CONDCTOR, CHIP	(1005)		
R065	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R066	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R070	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R071	1-218-951-11	METAL GLAZE	680	5%	1/16W
R072	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R075	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R076	1-218-948-11	METAL GLAZE	390	5%	1/16W
R077	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R078	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R079	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R080	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R081	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R082	1-218-945-11	METAL GLAZE	220	5%	1/16W
R083	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R084	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R085	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R087	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R088	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R089	1-218-948-11	METAL GLAZE	390	5%	1/16W
R090	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R091	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R092	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R093	1-218-952-11	METAL GLAZE	820	5%	1/16W
R095	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R096	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R097	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R098	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R102	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R103	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R104	1-218-948-11	METAL GLAZE	390	5%	1/16W
R105	1-218-950-11	METAL GLAZE	560	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R106	1-218-950-11	METAL GLAZE	560	5%	1/16W
R107	1-218-948-11	METAL GLAZE	390	5%	1/16W
R109	1-218-945-11	METAL GLAZE	220	5%	1/16W
R110	1-218-945-11	METAL GLAZE	220	5%	1/16W
R111	1-218-949-11	METAL GLAZE	470	5%	1/16W
R112	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R113	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R114	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R115	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R116	1-218-952-11	METAL GLAZE	820	5%	1/16W
R117	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R119	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R123	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R124	1-218-947-11	METAL GLAZE	330	5%	1/16W
R125	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R126	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R127	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R128	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R129	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R130	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R131	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R133	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R134	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R135	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R136	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R138	1-218-952-11	METAL GLAZE	820	5%	1/16W
R139	1-218-952-11	METAL GLAZE	820	5%	1/16W
R140	1-218-990-11	CONDCTOR, CHIP	(1005)		
R141	1-218-946-11	METAL GLAZE	270	5%	1/16W
R142	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R143	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R144	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R145	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R146	1-218-945-11	METAL GLAZE	220	5%	1/16W
R147	1-218-950-11	METAL GLAZE	560	5%	1/16W
R148	1-218-990-11	CONDCTOR, CHIP	(1005)		
R150	1-218-952-11	METAL GLAZE	820	5%	1/16W
R151	1-218-949-11	METAL GLAZE	470	5%	1/16W
R152	1-218-949-11	METAL GLAZE	470	5%	1/16W
R154	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R155	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R156	1-218-947-11	METAL GLAZE	330	5%	1/16W
R157	1-218-949-11	METAL GLAZE	470	5%	1/16W
R158	1-218-948-11	METAL GLAZE	390	5%	1/16W
R159	1-218-948-11	METAL GLAZE	390	5%	1/16W
R160	1-218-950-11	METAL GLAZE	560	5%	1/16W
R162	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R163	1-218-941-11	METAL GLAZE	100	5%	1/16W
R164	1-218-950-11	METAL GLAZE	560	5%	1/16W

Ref. No.	Part No.	Description	Remarks
R165	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R166	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R167	1-218-990-11	CONDCTOR, CHIP (1005)	
R185	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R190	1-218-990-11	CONDCTOR, CHIP (1005)	
R191	1-218-990-11	CONDCTOR, CHIP (1005)	
R192	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R193	1-218-990-11	CONDCTOR, CHIP (1005)	
R195	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R196	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R197	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R198	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R201	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R202	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R203	1-218-955-11	METAL GLAZE 1.5K 5% 1/16W	
R204	1-218-947-11	METAL GLAZE 330 5% 1/16W	
R205	1-218-960-11	METAL GLAZE 3.9K 5% 1/16W	
R206	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R207	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R208	1-218-962-11	METAL GLAZE 5.6K 5% 1/16W	
R210	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R211	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R214	1-218-987-11	METAL GLAZE 680K 5% 1/16W	
R215	1-218-942-11	METAL GLAZE 120 5% 1/16W	
R216	1-218-951-11	METAL GLAZE 680 5% 1/16W	
R217	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R219	1-218-951-11	METAL GLAZE 680 5% 1/16W	
R221	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R222	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R224	1-218-962-11	METAL GLAZE 5.6K 5% 1/16W	
R225	1-218-990-11	CONDCTOR, CHIP (1005)	
R226	1-218-990-11	CONDCTOR, CHIP (1005)	
R228	1-218-990-11	CONDCTOR, CHIP (1005)	
R229	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R232	1-218-962-11	METAL GLAZE 5.6K 5% 1/16W	
R233	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R234	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R235	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R236	1-218-849-11	METAL CHIP 1.2K 0.50% 1/16W	
R237	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R238	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R239	1-218-859-11	METAL CHIP 3.3K 0.50% 1/16W	
R240	1-218-955-11	METAL GLAZE 1.5K 5% 1/16W	
R241	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R242	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R243	1-218-839-11	METAL GLAZE 470 0.50% 1/16W	
R245	1-218-960-11	METAL GLAZE 3.9K 5% 1/16W	
R246	1-218-950-11	METAL GLAZE 560 5% 1/16W	
R247	1-218-837-11	METAL GLAZE 390 0.50% 1/16W	
R248	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R249	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R250	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R251	1-218-990-11	CONDCTOR, CHIP (1005)	
R252	1-218-990-11	CONDCTOR, CHIP (1005)	
R253	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R254	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R255	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R257	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R258	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R259	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R260	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R261	1-218-963-11	METAL GLAZE 6.8K 5% 1/16W	
R262	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R263	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R264	1-216-296-91	CONDUCTOR, CHIP (3216)	
R265	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R266	1-218-990-11	CONDCTOR, CHIP (1005)	
R267	1-218-942-11	METAL GLAZE 120 5% 1/16W	
R268	1-218-976-11	METAL GLAZE 82K 5% 1/16W	
R270	1-218-990-11	CONDCTOR, CHIP (1005)	
R272	1-216-296-91	CONDUCTOR, CHIP (3216)	
R273	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R274	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R275	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R276	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R278	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R279	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R280	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R281	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R282	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R283	1-218-990-11	CONDCTOR, CHIP (1005)	
R284	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R285	1-216-296-91	CONDUCTOR, CHIP (3216)	
R287	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R288	1-218-942-11	METAL GLAZE 120 5% 1/16W	
R289	1-218-976-11	METAL GLAZE 82K 5% 1/16W	
R290	1-218-990-11	CONDCTOR, CHIP (1005)	
R291	1-216-296-91	CONDUCTOR, CHIP (3216)	
R292	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R293	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R294	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R295	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R296	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R297	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R298	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R299	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R300	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R301	1-218-950-11	METAL GLAZE 560 5% 1/16W	
R302	1-218-990-11	CONDCTOR, CHIP (1005)	
R303	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R304	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R306	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R307	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R308	1-218-948-11	METAL GLAZE	390	5%	1/16W
R310	1-218-990-11	CONDCTOR, CHIP	(1005)		
R311	1-218-990-11	CONDCTOR, CHIP	(1005)		
R313	1-218-990-11	CONDCTOR, CHIP	(1005)		
R314	1-218-948-11	METAL GLAZE	390	5%	1/16W
R315	1-218-949-11	METAL GLAZE	470	5%	1/16W
R316	1-218-951-11	METAL GLAZE	680	5%	1/16W
R317	1-218-948-11	METAL GLAZE	390	5%	1/16W
R320	1-218-947-11	METAL GLAZE	330	5%	1/16W
R321	1-218-947-11	METAL GLAZE	330	5%	1/16W
R323	1-218-947-11	METAL GLAZE	330	5%	1/16W
R326	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R327	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R328	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R329	1-218-942-11	METAL GLAZE	120	5%	1/16W
R330	1-218-951-11	METAL GLAZE	680	5%	1/16W
R331	1-218-950-11	METAL GLAZE	560	5%	1/16W
R332	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R333	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R337	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R338	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R339	1-218-949-11	METAL GLAZE	470	5%	1/16W
R340	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R341	1-218-949-11	METAL GLAZE	470	5%	1/16W
R342	1-218-950-11	METAL GLAZE	560	5%	1/16W
R343	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R344	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R345	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R346	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R347	1-218-952-11	METAL GLAZE	820	5%	1/16W
R348	1-218-951-11	METAL GLAZE	680	5%	1/16W
R349	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R350	1-218-949-11	METAL GLAZE	470	5%	1/16W
R351	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R352	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R353	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R354	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R355	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R356	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R357	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R358	1-218-946-11	METAL GLAZE	270	5%	1/16W
R359	1-218-945-11	METAL GLAZE	220	5%	1/16W
R360	1-218-946-11	METAL GLAZE	270	5%	1/16W
R361	1-218-951-11	METAL GLAZE	680	5%	1/16W
R362	1-218-950-11	METAL GLAZE	560	5%	1/16W
R363	1-218-990-11	CONDCTOR, CHIP	(1005)		
R364	1-218-951-11	METAL GLAZE	680	5%	1/16W
R366	1-218-951-11	METAL GLAZE	680	5%	1/16W
R367	1-218-990-11	CONDCTOR, CHIP	(1005)		
R368	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R369	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R370	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R371	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R372	1-218-990-11	CONDCTOR, CHIP	(1005)		
R373	1-218-947-11	METAL GLAZE	330	5%	1/16W
R374	1-218-990-11	CONDCTOR, CHIP	(1005)		
R376	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R377	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R378	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R379	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R381	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R383	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R385	1-218-990-11	CONDCTOR, CHIP	(1005)		
R386	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R387	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R389	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R390	1-218-990-11	CONDCTOR, CHIP	(1005)		
R391	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R392	1-218-951-11	METAL GLAZE	680	5%	1/16W
R393	1-218-950-11	METAL GLAZE	560	5%	1/16W
R394	1-218-893-11	METAL CHIP	82K	0.50%	1/16W
R395	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R396	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R397	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R420	1-218-945-11	METAL GLAZE	220	5%	1/16W
R422	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R423	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R424	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R425	1-218-990-11	CONDCTOR, CHIP	(1005)		
R428	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R429	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R430	1-218-947-11	METAL GLAZE	330	5%	1/16W
R431	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R432	1-216-803-11	METAL CHIP	33	5%	1/16W
R433	1-216-803-11	METAL CHIP	33	5%	1/16W
R434	1-216-804-11	METAL CHIP	39	5%	1/16W
R435	1-216-804-11	METAL CHIP	39	5%	1/16W
R436	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R437	1-218-941-11	METAL GLAZE	100	5%	1/16W
R438	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R439	1-218-945-11	METAL GLAZE	220	5%	1/16W
R440	1-218-941-11	METAL GLAZE	100	5%	1/16W
R441	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R442	1-218-847-11	METAL CHIP	1K	0.50%	1/16W
R443	1-218-849-11	METAL CHIP	1.2K	0.50%	1/16W
R444	1-218-847-11	METAL CHIP	1K	0.50%	1/16W
R445	1-218-965-11	METAL GLAZE	10K	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R446	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R447	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R448	1-218-990-11	CONDCTOR, CHIP	(1005)			
R449	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R450	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R453	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R454	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R455	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R457	1-218-952-11	METAL GLAZE	820	5%	1/16W	
R458	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R459	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R460	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R461	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R462	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R463	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R464	1-218-990-11	CONDCTOR, CHIP	(1005)			
R465	1-218-990-11	CONDCTOR, CHIP	(1005)			
R468	1-216-803-11	METAL CHIP	33	5%	1/16W	
R469	1-216-804-11	METAL CHIP	39	5%	1/16W	
R476	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R477	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R481	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R482	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R486	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R488	1-218-871-11	METAL CHIP	10K	0.50%	1/16W	
R493	1-218-990-11	CONDCTOR, CHIP	(1005)			
R494	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R495	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R496	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R498	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R499	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R501	1-216-019-00	METAL CHIP	56	5%	1/10W	
R502	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R503	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R504	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R512	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W	
R513	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R514	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R516	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R517	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R518	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R529	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R530	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R531	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R533	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R535	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R536	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R537	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R538	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R539	1-218-971-11	METAL GLAZE	33K	5%	1/16W	

Ref. No.	Part No.	Description				Remarks
R540	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R541	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R542	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R543	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R544	1-217-671-11	METAL CHIP	1	5%	1/10W	
R545	1-217-671-11	METAL CHIP	1	5%	1/10W	
R546	1-217-671-11	METAL CHIP	1	5%	1/10W	
R548	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R549	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R550	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R551	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R552	1-218-990-11	CONDCTOR, CHIP	(1005)			
R554	1-218-990-11	CONDCTOR, CHIP	(1005)			
R559	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R560	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R563	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R564	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R565	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R566	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R567	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R568	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R569	1-218-990-11	CONDCTOR, CHIP	(1005)			
R571	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R572	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R573	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R574	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R575	1-218-990-11	CONDCTOR, CHIP	(1005)			
R596	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R607	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R608	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R611	1-218-940-11	METAL GLAZE	82	5%	1/16W	
R616	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R617	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R618	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R619	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R620	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R623	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R629	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R630	1-218-990-11	CONDCTOR, CHIP	(1005)			
R640	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R641	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R643	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R644	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R656	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R657	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R658	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R659	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R660	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R661	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R662	1-218-973-11	METAL GLAZE	47K	5%	1/16W	

VS-113

Ref. No.	Part No.	Description	Remarks
R664	1-218-990-11	CONDCTOR, CHIP (1005)	
R672	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R673	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R675	1-218-965-11	METAL GLAZE 10K 5%	1/16W
R677	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R681	1-218-990-11	CONDCTOR, CHIP (1005)	
R683	1-218-963-11	METAL GLAZE 6.8K 5%	1/16W
R701	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R702	1-218-968-11	METAL GLAZE 18K 5%	1/16W
R703	1-218-968-11	METAL GLAZE 18K 5%	1/16W
R710	1-218-985-11	METAL GLAZE 470K 5%	1/16W
R712	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R716	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R718	1-218-990-11	CONDCTOR, CHIP (1005)	
R719	1-218-965-11	METAL GLAZE 10K 5%	1/16W
R723	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R724	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R726	1-218-990-11	CONDCTOR, CHIP (1005)	
R728	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R729	1-218-990-11	CONDCTOR, CHIP (1005)	
R730	1-218-949-11	METAL GLAZE 470 5%	1/16W
R731	1-218-983-11	METAL GLAZE 330K 5%	1/16W
R732	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R733	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R734	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R739	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R740	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R741	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R742	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R744	1-218-990-11	CONDCTOR, CHIP (1005)	
R745	1-218-990-11	CONDCTOR, CHIP (1005)	
R747	1-218-990-11	CONDCTOR, CHIP (1005)	
R748	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R750	1-218-990-11	CONDCTOR, CHIP (1005)	
R756	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R757	1-218-965-11	METAL GLAZE 10K 5%	1/16W
R758	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R759	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R760	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R761	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R762	1-218-989-11	METAL GLAZE 1M 5%	1/16W
R763	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R764	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R765	1-218-961-11	METAL GLAZE 4.7K 5%	1/16W
R766	1-218-907-11	METAL CHIP 330K 0.50%	1/16W
R767	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R768	1-218-981-11	METAL GLAZE 220K 5%	1/16W
R769	1-218-985-11	METAL GLAZE 470K 5%	1/16W
R770	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R771	1-218-953-11	METAL GLAZE 1K 5%	1/16W

Ref. No.	Part No.	Description	Remarks
R772	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R781	1-218-990-11	CONDCTOR, CHIP (1005)	
R782	1-218-983-11	METAL GLAZE 330K 5%	1/16W
R783	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R784	1-218-990-11	CONDCTOR, CHIP (1005)	
R785	1-218-990-11	CONDCTOR, CHIP (1005)	
R786	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R787	1-218-953-11	METAL GLAZE 1K 5%	1/16W
R788	1-218-990-11	CONDCTOR, CHIP (1005)	
R789	1-218-990-11	CONDCTOR, CHIP (1005)	
R790	1-218-990-11	CONDCTOR, CHIP (1005)	
R791	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R792	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R793	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R794	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R796	1-218-947-11	METAL GLAZE 330 5%	1/16W
R798	1-218-951-11	METAL GLAZE 680 5%	1/16W
R799	1-218-965-11	METAL GLAZE 10K 5%	1/16W
R803	1-218-985-11	METAL GLAZE 470K 5%	1/16W
R810	1-218-944-11	METAL GLAZE 180 5%	1/16W
R811	1-218-944-11	METAL GLAZE 180 5%	1/16W
R812	1-218-944-11	METAL GLAZE 180 5%	1/16W
R813	1-218-944-11	METAL GLAZE 180 5%	1/16W
R821	1-218-952-11	METAL GLAZE 820 5%	1/16W
R822	1-218-952-11	METAL GLAZE 820 5%	1/16W
R823	1-218-952-11	METAL GLAZE 820 5%	1/16W
R824	1-218-952-11	METAL GLAZE 820 5%	1/16W
R827	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R828	1-218-990-11	CONDCTOR, CHIP (1005)	
R829	1-218-990-11	CONDCTOR, CHIP (1005)	
R831	1-218-977-11	METAL GLAZE 100K 5%	1/16W
R832	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R834	1-218-851-11	METAL CHIP 1.5K 0.50%	1/16W
R835	1-218-887-11	METAL CHIP 47K 0.50%	1/16W
R836	1-218-961-11	METAL GLAZE 4.7K 5%	1/16W
R837	1-218-985-11	METAL GLAZE 470K 5%	1/16W
R838	1-218-851-11	METAL CHIP 1.5K 0.50%	1/16W
R839	1-218-887-11	METAL CHIP 47K 0.50%	1/16W
R840	1-218-983-11	METAL GLAZE 330K 5%	1/16W
R841	1-218-962-11	METAL GLAZE 5.6K 5%	1/16W
R842	1-218-983-11	METAL GLAZE 330K 5%	1/16W
R843	1-218-962-11	METAL GLAZE 5.6K 5%	1/16W
R844	1-218-973-11	METAL GLAZE 47K 5%	1/16W
R849	1-218-875-11	METAL CHIP 15K 0.50%	1/16W
R850	1-218-903-11	METAL CHIP 220K 0.50%	1/16W
R854	1-218-965-11	METAL GLAZE 10K 5%	1/16W
R855	1-218-970-11	METAL GLAZE 27K 5%	1/16W
R856	1-218-969-11	METAL GLAZE 22K 5%	1/16W
R865	1-218-945-11	METAL GLAZE 220 5%	1/16W
R876	1-218-956-11	METAL GLAZE 1.8K 5%	1/16W

Ref. No.	Part No.	Description	Remarks
R880	1-218-990-11	CONDCTOR, CHIP (1005)	
R885	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R886	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R904	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R906	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R907	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R938	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R939	1-218-907-11	METAL CHIP 330K 0.50% 1/16W	
R940	1-218-915-11	METAL CHIP 680K 0.50% 1/16W	
R946	1-218-938-11	METAL GLAZE 56 5% 1/16W	
R947	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R948	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R949	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R951	1-218-873-11	METAL CHIP 12K 0.50% 1/16W	
R952	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R953	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R954	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R955	1-218-990-11	CONDCTOR, CHIP (1005)	
R956	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R957	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R958	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R959	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R960	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R961	1-218-943-11	METAL GLAZE 150 5% 1/16W	
R962	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R963	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R964	1-218-941-11	METAL GLAZE 100 5% 1/16W	
R965	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R966	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R967	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R969	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R970	1-218-990-11	CONDCTOR, CHIP (1005)	
R971	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R972	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R973	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R974	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R975	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R976	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R977	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R978	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R979	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R980	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R981	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R982	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R983	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R984	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R985	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R986	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R987	1-218-889-11	METAL CHIP 56K 0.50% 1/16W	
R988	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R989	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R990	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R991	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R992	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R993	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R994	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R995	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R996	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R997	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R998	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R999	1-218-973-11	METAL GLAZE 47K 5% 1/16W	

< CONPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description	Remarks
RB501	1-239-286-11	NETWORK RESISTOR (CHIP) 22K	
RB502	1-236-907-11	NETWORK RESISTOR (CHIP) 100K	
RB503	1-236-907-11	NETWORK RESISTOR (CHIP) 100K	
RB504	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB505	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB506	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB701	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB703	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB704	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K	
RB705	1-236-907-11	NETWORK RESISTOR (CHIP) 100K	
RB706	1-239-711-11	NETWORK RESISTOR (CHIP) 0	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV201	1-238-852-11	RES, ADJ, CERMET 470	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
T951	1-427-754-21	TRANSFORMER, CONVERTER	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X071	1-760-460-21	VIBRATOR, CRYSTAL 46MHz	
X201	1-579-366-11	VIBRATOR, CRYSTAL 4.43MHz	
X501	1-760-315-11	VIBRATOR, CRYSTAL 11.718MHz	
X701	1-760-458-21	VIBRATOR, CRYSTAL 32.768KHz	
XTL701	1-579-369-21	VIBRATOR 10MHz	

A-7072-344-A ZF-1P BOARD, COMPLETE
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(Ref.No.1,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C101	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C190	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C191	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C192	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C193	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

ZF-1P

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN102	1-766-832-21	CONNECTOR, FFC/FPC (ZIF) 15P	
CN103	1-537-439-11	TARMINAL BOARD, CONNECTOR	
CN104	1-573-367-21	CONNECTOR, FFC/FPC 27P	
* CN190	1-580-756-21	PIN, CONNECTOR 7P	
* CN191	1-580-056-21	PIN, CONNECTOR 3P	
		< DIODE >	
D101	8-719-050-43	DIODE MA7Z0330LLLA	
D102	8-719-421-67	DIODE MA132WK	
D103	8-719-404-49	DIODE MA111	
D105	8-719-421-27	DIODE MA728	
D106	8-719-421-27	DIODE MA728	
D108	8-719-045-87	DIODE MA4Z082WA-TX	
D109	8-719-045-87	DIODE MA4Z082WA-TX	
D110	8-719-045-87	DIODE MA4Z082WA-TX	
D111	8-719-045-87	DIODE MA4Z082WA-TX	
D112	8-719-420-14	DIODE MA8082-M	
D116	8-719-045-87	DIODE MA4Z082WA-TX	
D117	8-719-420-14	DIODE MA8082-M	
D118	8-719-045-87	DIODE MA4Z082WA-TX	
D119	8-719-045-87	DIODE MA4Z082WA-TX	
D120	8-719-045-87	DIODE MA4Z082WA-TX	
D125	8-719-420-14	DIODE MA8082-M	
D190	8-719-404-49	DIODE MA111	
		< IC >	
IC101	8-759-998-92	IC LM393D	
		< COIL >	
L101	1-414-117-11	INDUCTOR 1uH	
L102	1-414-117-11	INDUCTOR 1uH	
L103	1-414-117-11	INDUCTOR 1uH	
		< IC LINK >	
⚠PS190	1-533-283-21	LINK, CHIP IC 1.25A 125V	
⚠PS191	1-533-283-21	LINK, CHIP IC 1.25A 125V	
⚠PS192	1-533-283-21	LINK, CHIP IC 1.25A 125V	
⚠PS193	1-533-283-21	LINK, CHIP IC 1.25A 125V	
		< TRANSISTOR >	
Q101	8-729-425-50	TRANSISTOR 2SB1462Q	
Q102	8-729-427-72	TRANSISTOR XP4501	
Q103	8-729-427-70	TRANSISTOR XP4401	
Q104	8-729-429-32	TRANSISTOR UN9210-QRS	
Q105	8-729-429-18	TRANSISTOR UN9213	
Q106	8-729-429-18	TRANSISTOR UN9213	
Q108	8-729-427-46	TRANSISTOR XP4213	
Q109	8-729-428-88	TRANSISTOR UN9113	
Q110	8-729-425-50	TRANSISTOR 2SB1462Q	
Q111	8-729-421-90	TRANSISTOR XN4113	
Q112	8-729-429-18	TRANSISTOR UN9213	
Q115	8-729-429-02	TRANSISTOR UN9110-QRS	
Q120	8-729-429-32	TRANSISTOR UN9210-QRS	
Q121	8-729-429-18	TRANSISTOR UN9213	
Q190	8-729-024-24	TRANSISTOR 2SK2154-TL	
Q191	8-729-024-24	TRANSISTOR 2SK2154-TL	
		< RESISTOR >	
R101	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R102	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R103	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R104	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R105	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R106	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R107	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R108	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R109	1-216-818-11	METAL CHIP 560 5% 1/16W	
R110	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R111	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R112	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R116	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R117	1-216-864-11	METAL CHIP 0 5% 1/16W	
R119	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R120	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R126	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R128	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R129	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R130	1-216-854-11	METAL CHIP 560K 5% 1/16W	
R131	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R132	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R133	1-216-809-11	METAL CHIP 100 5% 1/16W	
R134	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R135	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R136	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R137	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R142	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R143	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R144	1-216-813-11	METAL CHIP 220 5% 1/16W	
R145	1-216-813-11	METAL CHIP 220 5% 1/16W	
R146	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R190	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R191	1-216-821-11	METAL CHIP 1K 5% 1/16W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MISCELLANEOUS

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Ref. No.	Part No.	Description	Remarks
51	1-473-176-11	SWITCH BLOCK, CONTROL (CF4220L2)	
57	1-537-896-11	TERMINAL BOARD (I/O JACK)	
59	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
60	1-695-920-11	JACK, ULTRA MINIATURE 1P	
72	1-542-265-11	MICROPHONE UNIT	
106	1-504-860-11	SPEAKER (2.8MC)	
116	1-537-578-11	TERMINAL BOARD, BATTERY	
120	1-473-175-21	SWITCH BLOCK, CONTROL(CF4220L1)	(AEP,UK)
120	1-473-175-31	SWITCH BLOCK, CONTROL(CF4220L1)	(E,Hongkong)
123	1-473-174-11	SWITCH BLOCK, CONTROL(CF4220R)	
132	1-473-258-11	SWITCH BLOCK, CONTROL(CF4220L3)	
151	1-473-177-11	SWITCH BLOCK, CONTROL(CF4220U)	
168	8-753-015-00	LCX005AK-4	
257	1-547-735-51	FILTER BLOCK, OPTICAL	
259	1-810-862-21	INDICATOR MODULE, LIQUID CRYST	
261	1-517-411-11	TUBE,FLUORESCENT, COLD CATHODE	
401	8-848-705-01	DEVICE, LENS LSV-111A	
M901	A-7048-716-A	DRUM ASSY (DGH-80E-R)	
M902	8-835-498-12	MOTOR, DC SCE-0401A (CAPSTAN)	
M903	X-3943-127-1	MOTOR ASSY, L (LOADING)	
M904	1-547-756-11	IRIS (IRX-011)	
M906	8-835-491-01	MOTOR, STEPING (SPB-01S01N)(ZOOM)	
BL801	1-517-325-11	LAMP,FLUORESCENT (0.55INCH)	
SE401	1-810-725-31	SENSOR,ANGULAR VELOCITY (PITCH)	
SE402	1-810-725-41	SENSOR ANGULAR VELOCITY (YAW)	
IC201	A-7030-495-A	CCD BLOCK ASSY(AUTO) (CCD IMAGER) (ICX060-AK-4)	
S001	1-572-288-11	SWITCH,PUSH (C.C.LOCK)	
S002	1-692-614-11	SWITCH,PUSH (3 KEY) (REC PROOF,ME/MP)	

ACCESSORIES & PACKING MATERIALS

****

Ref. No.	Part No.	Description	Remarks
	1-569-008-11	ADAPTER, CONVERSION 2P	(E,Hongkong)
	1-573-291-11	CONNECTOR, CONVERSION	(AEP,UK)
	1-575-335-21	CORD, CONNECTION (S VIDEO)(1.5m)	
	1-769-166-11	CORD, CONNECTION (DK CABLE)(2.1m)	
	1-769-285-11	CORD, CONNECTION (AV CABLE)(1.5m)	
	3-798-837-11	MANUAL, INSTRUCTION (ENGLISH/SPANISH)	(AEP,UK)
	3-798-837-41	MANUAL, INSTRUCTION (GERMAN/ITALIAN)	(AEP)
	3-798-837-51	MANUAL, INSTRUCTION (FRENCH/DUTCH)	(AEP)
	3-798-837-61	MANUAL,INSTRUCTION (SWEDISH/PORTUGUESE)	(AEP)
	3-798-837-71	MANUAL, INSTRUCTION (DANISH/FINNISH)	(AEP)
	3-800-658-51	MANUAL, INSTRUCTION (SPANISH)	(E,Hongkong)
	3-800-658-61	MANUAL, INSTRUCTION (FRENCH/GERMAN)	(E,Hongkong)
	3-800-658-71	MANUAL, INSTRUCTION (ARABIC)	(E)
	3-800-658-81	MANUAL, INSTRUCTION (CHINESE)	(E,Hongkong)
	3-947-969-21	BELT (S), SHOULDER	
	3-956-563-01	CLEANER, LCD	(AEP,UK)
	3-965-213-11	COVER, EVF	(AEP,E,Hongkong)
*	3-966-331-11	INDIVIDUAL CARTON	
*	3-966-347-01	CUSHION (LOWER)	
*	3-966-348-01	CUSHION, ACC	
	8-917-267-90	REMOTE CONTROL RMT-712 SET	(AEP,UK)
	8-917-270-90	REMOTE CONTROL RMT-711 SET	(E,Hongkong)
	A-6776-333-A	AC POWER ADAPTOR (AC-V515)	(AEP)
	A-6776-334-A	AC POWER ADAPTOR (AC-V515)	(UK)
	A-6776-329-A	AC POWER ADAPTOR (AC-V515)	(E,Hongkong)
	**NP-720	BATTERY PACK	

NOTE.

**MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

SECTION 7
ADJUSTMENT

TABLE OF CONTENTS

7-1. CAMERA SECTION ADJUSTMENT

1-1.PREPARATIONS BEFORE ADJUSTMENT..........7-3
- 1-1-1. List of service tools 7-3
- 1-1-2. Preparations 7-4
- 1-1-3. Precautions..7-5
- 1-1-4. Initialization of Page F Data...........................7-6
- 1-1-5. Page F Data Modification 7-7

1-2. CAMERA SYSTEM ADJUSTMENTS 7-8
- 1. Adjustment points when the main parts are replaced 7-8
- 2. Power supply voltage check(VC-158board) ...7-8
- 3. 28 MHz crystal oscillator adjustment (VC-158 board)..7-8
- 4. V SUB adjustment (VC-158 board).................7-9
- 5. V RG adjustment (VC-158 board)...................7-9
- 6. HALL adjustment...7-10
- 7. Flange back adjustment...............................7-12
- 8. Flange back check 7-13
- 9. Picture frame setting 7-14
- 10. Color reproduction adjustment......................7-15
- 11. IRIS IN/OUT adjustment 7-16
- 12. MAX GAIN adjustment..................................7-17
- 13. Auto white balance reference data input......7-18
- 14. Auto white balance adjustment 7-19
- 15. White balance check 7-20
- 16. Camera-shaking correction adjustment 7-21

1-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT 7-22
- 1.Power supply voltage check............................7-22
- 2.EVR initial data input.......................................7-22
- 3.VCO adjustment (VF-79 board).......................7-23
- 4.BRIGHT adjustment (VF-79 board).................7-23
- 5.CONTRAST adjustment (VF-79 board)...........7-24
- 6.Back-light current consumption adjustment (VF-78 board)..7-24
- 7.White balance adjustment 7-25
- 8.BURST CLEANING adjustment (VF-79 board)..7-25
- 9.AUTO OFF level adjustment(VF-78board)......7-25

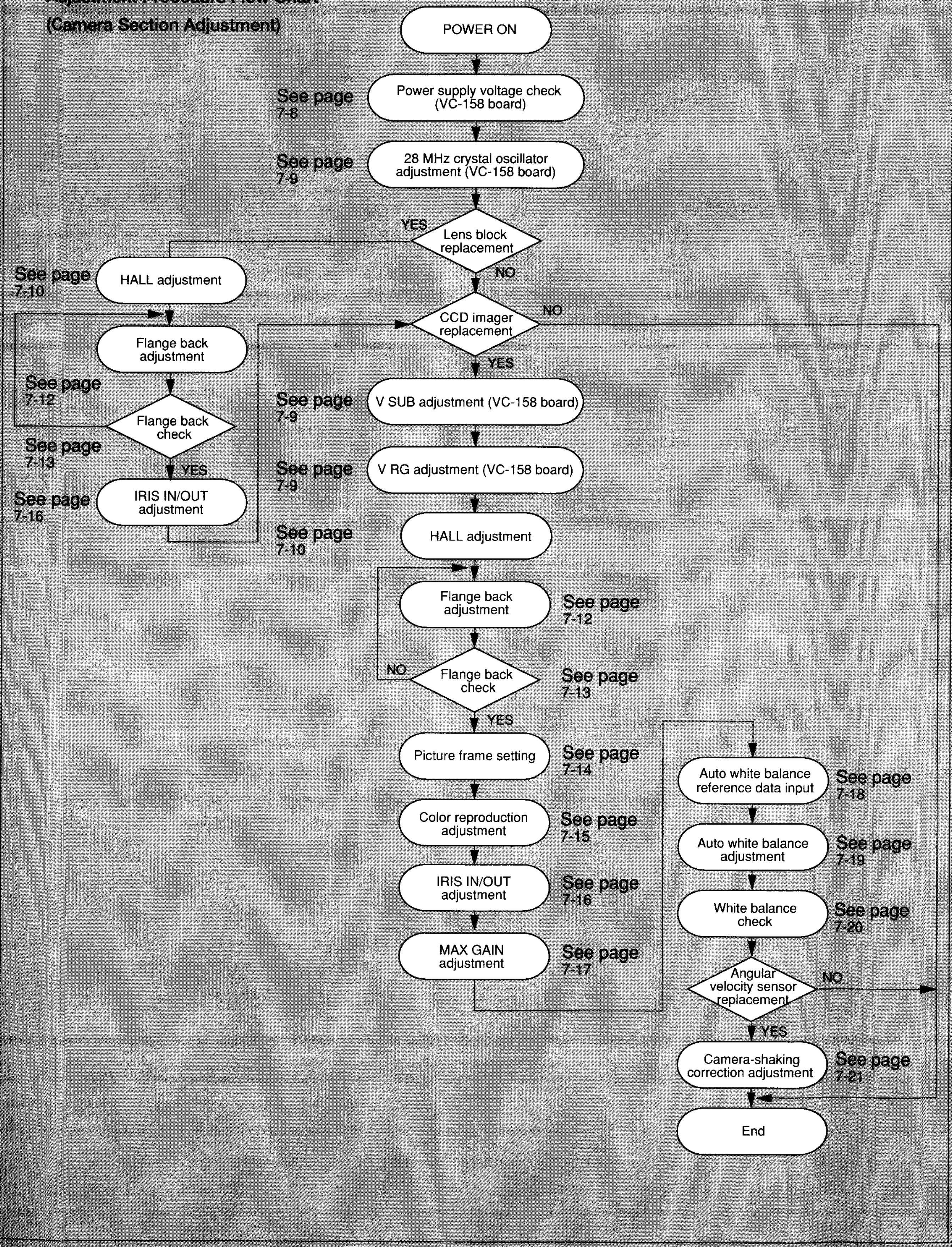
1-4.LCD ADJUSTMENT 7-26
- 1. LCD system adjustment (PD-61 board) 7-26
- 2. EVR initial data input.................................. 7-26
- 3. BRIGHT adjustment 7-27
- 4. CONTRAST adjustment................................7-27
- 5. COLOR adjustment......................................7-28
- 6. BURST CLEANING adjustment 7-28
- 7. V. COM adjustment......................................7-29
- 8. White balance preset adjustment (1) 7-30
- 9. White balance preset adjustment (2) 7-30
- 10. White balance adjustment............................7-31
- 11. VCO adjustment...7-31
- 12. Horizontal display position adjustment (PD-61 board) 7-32

7-2. MECHANISM SECTION ADJUSTMENT

2-1. HOW TO OPERATE THE MECHANISM AFTER THE CASSETTE COMPARTMENT IS REMOVED 7-33

2-2. TAPE PATH ADJUSTMENT.............................7-34

Adjustment Procedure Flow Chart (Camera Section Adjustment)


POWER ON
See page 7-8
Power supply voltage check (VC-158 board)
See page 7-9
28 MHz crystal oscillator adjustment (VC-158 board)
Lens block replacement
YES
NO
See page 7-10
HALL adjustment
Flange back adjustment
See page 7-12
Flange back check
See page 7-13
YES
See page 7-16
IRIS IN/OUT adjustment
CCD imager replacement
NO
YES
See page 7-9
V SUB adjustment (VC-158 board)
See page 7-9
V RG adjustment (VC-158 board)
See page 7-10
HALL adjustment
Flange back adjustment
See page 7-12
NO
Flange back check
See page 7-13
YES
Picture frame setting
See page 7-14
Color reproduction adjustment
See page 7-15
IRIS IN/OUT adjustment
See page 7-16
MAX GAIN adjustment
See page 7-17
Auto white balance reference data input
See page 7-18
Auto white balance adjustment
See page 7-19
White balance check
See page 7-20
Angular velocity sensor replacement
NO
YES
Camera-shaking correction adjustment
See page 7-21
End

6-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of service tools

Oscilloscope	Regulated power supply	Vectorscope
Adjustment screw driver	Color monitor	Digital voltmeter

Ref. No.	Name	Parts Code	Usage	
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check	White balance adjustment/check
J-2	ND filter 1.0 ND filter 0.3	J-6080-808-A J-6080-818-A	Maximum gain adjustment (Two filters are used) White balance check	White balance check
J-3	Pattern box PTB-450	J-6082-200-A		
J-4	Color chart for pattern box	J-6020-250-A		
J-5	Adjustment remote commander (RM-95 upgraded) *	J-6082-053-B		
J-6	Measuring pin tool for viewfinder	J-6082-192-A	For adjusting the viewfinder	
J-7	Power cord	J-6082-223-A	For connection between battery terminal and DC power supply unit	
J-8	Multi CPC	J-6082-311-A	For video section adjustment (VS-113 board CN002)	
J-9	EZ clip tool	J-6082-244-A	For connection between ZF-1P board (CN103) and Handy Cam station	
J-10	Extension cable (30 pin, 0.5 mm)	J-6082-270-A	For extension between the VS-113 board (CN703) and CF (R)	
J-11	Siemenstar chart	J-6080-875-A	For flange back check	
J-12	CPC conversion board for LCD	J-6082-290-A	For LCD adjustment (When adjusting LCD, use J-6 and J-12 at the same time.)	

Note: If the microprocessor IC in the adjusting remote commander is not the new microprocessor (µPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new microprocessor (8-759-148-35).

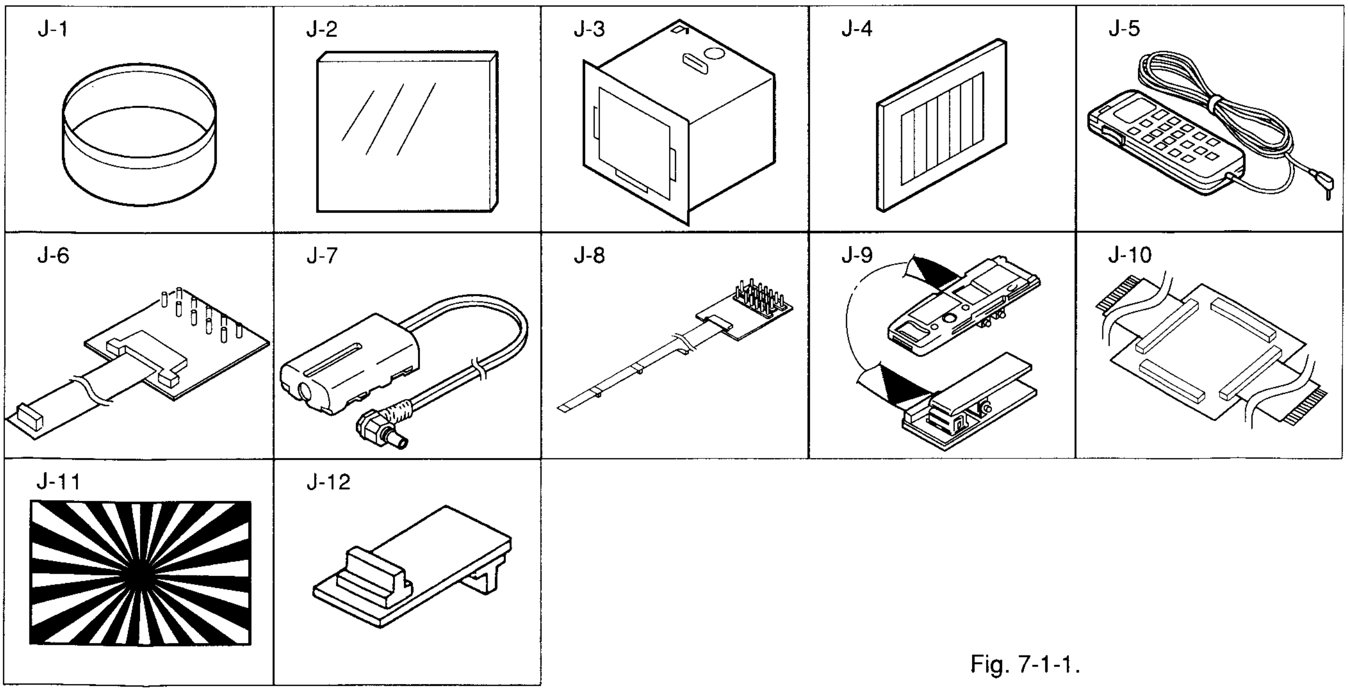


Fig. 7-1-1.

1-1-2. Preparations

Note 1: Refer to "3. Disassembly" for details of how to remove the cabinet and the respective boards.

Note 2: To make adjustment only, not repair, removal of the lens block and the VC-158 board are not necessary.

1. Connect the equipment for adjustment as shown in Fig. 7-1-3.
2. The EVF (electronic viewfinder) is necessary to check the white balance mode and shutter speed. However, the same contents appear on the monitor TV if the "data screen" is turned on. If the EVF is not necessary, dis connect CN851 on the VS-113 board.

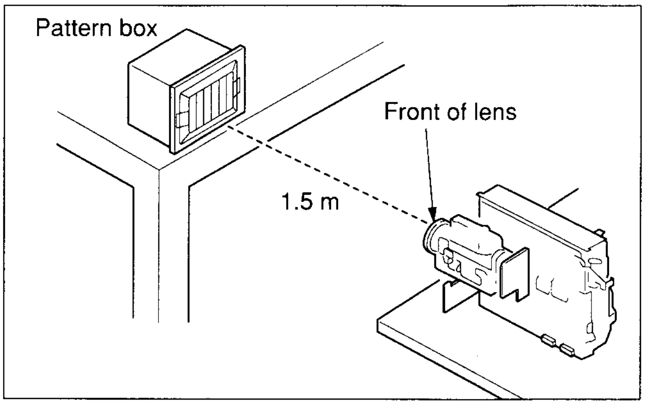

Pattern box
Front of lens
1.5 m

Fig. 7-1-2

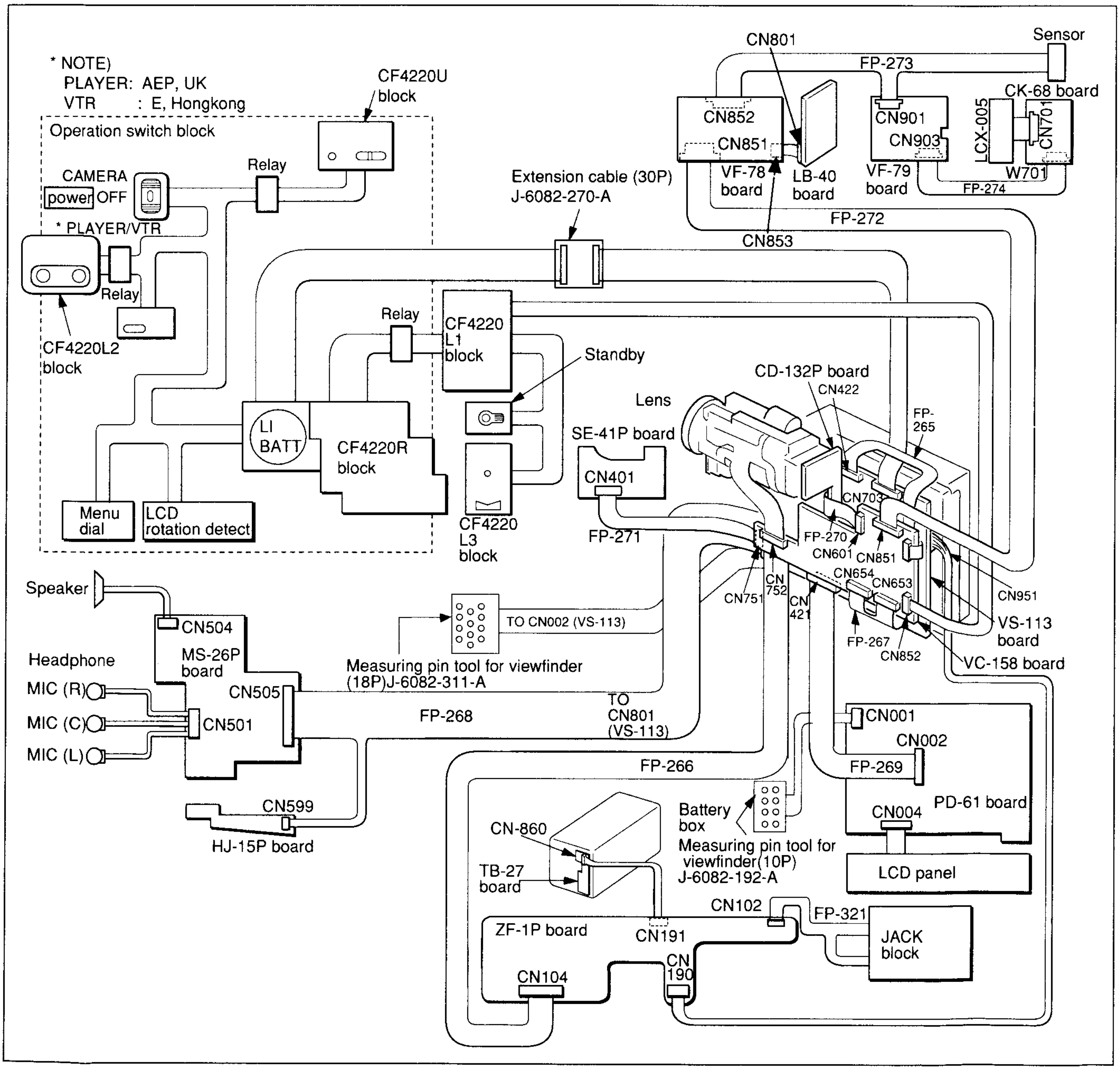

* NOTE)
PLAYER: AEP, UK
VTR : E, Hongkong
CF4220U block
Operation switch block
Relay
CAMERA
power OFF
* PLAYER/VTR
Relay
CF4220L2 block
Menu dial
LCD rotation detect
Relay
CF4220 L1 block
LI BATT
CF4220R block
Standby
CF4220 L3 block
Extension cable (30P) J-6082-270-A
CN801
Sensor
FP-273
CN852
CN851
VF-78 board
LB-40 board
CN853
CN901
CN903
VF-79 board
LCX-005
CN701
CK-68 board
W701
FP-274
FP-272
CD-132P board
CN422
Lens
SE-41P board
CN401
FP-271
FP-265
CN703
FP-270
CN601
CN851
CN654
CN653
CN751
CN 752
CN 421
FP-267
CN852
CN951
VS-113 board
VC-158 board
Speaker
CN504
Headphone
MS-26P board
MIC (R)
MIC (C)
MIC (L)
CN501
CN505
TO CN002 (VS-113)
Measuring pin tool for viewfinder (18P)J-6082-311-A
FP-268
TO CN801 (VS-113)
CN599
HJ-15P board
FP-266
CN001
CN002
FP-269
PD-61 board
CN004
LCD panel
Battery box
Measuring pin tool for viewfinder(10P) J-6082-192-A
CN-860
TB-27 board
ZF-1P board
CN191
CN102
FP-321
JACK block
CN104
CN 190

Fig. 7-1-3

1-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless otherwise specified.

1. **Camera/* PLAYER (VTR) power switch**
   (CF block (CF-4220) S35) ....Camera
2. Standby switch
   (CF block (CF-4220) S26) ....Standby
3. Menu (switch) cover
   (CF block (CF-4220) S36)................Open
4. Focus lock button
   (CF block (CF-4220) S38) ....Manual
5. Steady shot switch
   (CF block (CF-4220) S6) ....Off

2. Adjustment Sequence

Adjust in the given order.

3. Subject

1)Color bar chart (Standard picture frame)
When making adjustment using the color bar chart, adjust the picture frame as shown below.
(Standard picture frame)

2)White pattern (Standard picture frame)
Remove the color bar chart from the pattern box, and shoot the all white pattern. (Do not make any zooming operation at this time.)

* NOTE)
PLAYER: AEP, UK
VTR : E, Hongkong

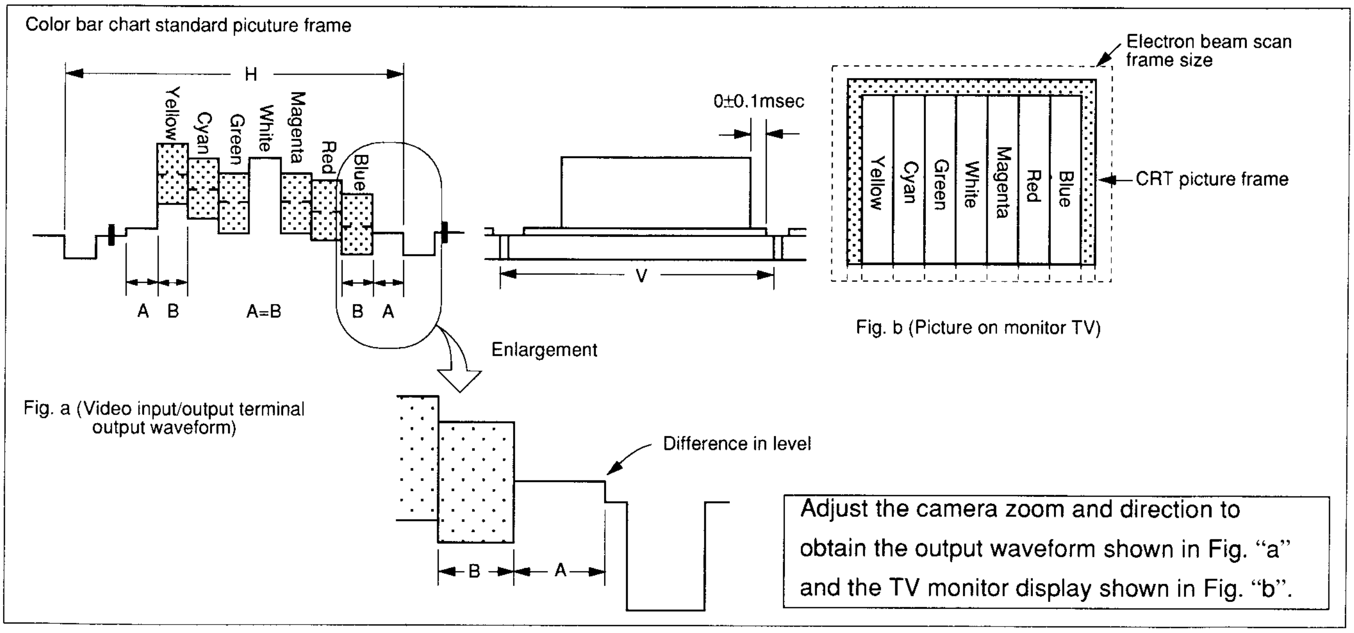

Color bar chart standard picuture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
0±0.1msec
V
Enlargement
Difference in level
B
A
Electron beam scan frame size
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

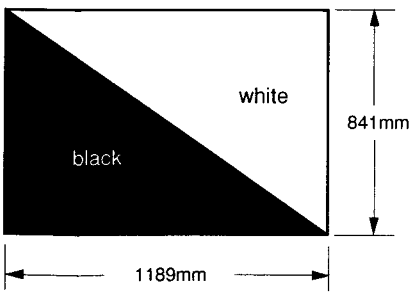
Fig. a (Video input/output terminal output waveform)

Fig. b (Picture on monitor TV)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. "a" and the TV monitor display shown in Fig. "b".

Fig. 7-1-4

3)Chart for flange back adjustment
Combine a white A0 size (1189 mm X 841 mm) paper to a black one, and make the chart shown in Fig. 7-1-5.


white
black
841mm
1189mm

Note: Use a non-reflecting and non-glazing vellum paper. Size must be larger than A0, and make the boundary between white and black to be smoothly flat.

Fig. 7-1-5

4)AUTO off level adjustment chart
Make the chart shown in Fig. 7-1-6 using a white paper.

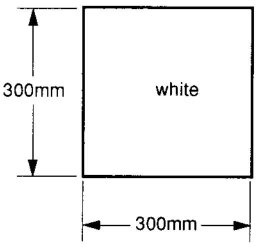

300mm
white
300mm

Fig. 7-1-6

1-1-4. Initialization of Page F Data

Note: If the page F data has been initialized, all adjustment items of the camera section must be executed again.

Initializing procedure:

Order	Page	Address	Data	Procedure
1				Turn off then on the main power supply.
2	6	00	01	After setting the data to the address, press the PAUSE button. (Preparation)
3	6	11		Confirm that the data is 00.
4	6	01	2F	After setting the data, Press the PAUSE button.
5				Page F data initialization
6	6	11		Confirm that the data is 01.

Note: Execute the initialization of page F only when the non-volatile memory (VC-158 board IC657 EEPROM) is replaced.

Works required after initialization

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, Press the PAUSE button. (End)
2				Perform the next item "1-1-5. Page F Data Modifications", then execute all adjustment items of the camera section.
3	6	00	00	After setting the data, Press the PAUSE button.(End)

Related Adjustments:

All items of camera adjustment excluding "28 MHz crystal oscillator adjustment".

1-1-5. Page F Data Modification

All the data of page F are automatically initialized if the initialization is executed. However, among the initialized data, the following addresses require manual modification of data after the page F data is initialized.

Modification procedure

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, Press the PAUSE button. (Preparation)
2	F	25	75	Set each data to each address, and press the PAUSE button.
		26	37	
		27	3F	
		33	3D	
		36	00	
		50	24	
		67	05	
		82	21	
		83	5A	
		91	48	
		2A	A4	
		2E	18	
		7C	50	
		B4	F2	
		B7	80	
		F4	98	
		F5	AE	
		F6	73	
		F7	88	
		F8	61	
		F9	C8	
		FA	5E	
		96	5C	
		97	73	
		98	7F	
3	F	28	23	
		38	AF	
4	6	00	00	After setting the data, Press the PAUSE button.(End)

Note: Address: B4 is not necessary to re-write in the AEP and UK models.

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjustment points when the main parts are replaced

When the CCD imager or lens block is replaced, adjust the items indicated by ○ in the following table.

	When CCD imager is replaced	When lens block is replaced
V SUB adjustment	○	
V RG adjustment	○	
HALL adjustment	○	○
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Auto white balance reference data input	○	
Auto white balance adjustment	○	
Color reproduction adjustment	○	

2. Power supply voltage check (VC-158 board)

Check Method

1) Check that the respective power supply voltages satisfy the specification.If not, refer to "Video circuit, Power supply block adjustment".

Subject	Any subject
Measuring equipment	Digital voltmeter
MT5V check	
Measurement point	CN653 pin ⑬, ⑭
Specification	5.0±0.1Vdc
D4.7V check	
Measurement point	CN653 pin ⑰, ⑱
Specification	4.7±0.1Vdc
D3.5V check	
Measurement point	CN653 pin ⑮, ⑯
Specification	3.5±0.15Vdc
CAM4.9V check	
Measurement point	CN653 pin ⑲, ⑳
Specification	4.9±0.1Vdc
CAM15V check	
Measurement point	CN653 pin ㉒
Specification	15.0±0.4Vdc
CAM-8.5V check	
Measurement point	CN653 pin ㉑
Specification	−8.5±0.5Vdc

3. 28 MHz crystal oscillator adjustment (VC-158 board)

Purpose: Adjusts 28 MHz crystal controlled oscillation for synchronizing clock.

Adjustment error: Loss of synchronization or loss of color

Subject	Note required
Measurement Point	IC601 Pin ⑫
Measuring Instrument	Frequency counter
Adjustment	CT601
Specification	14187500±70Hz

Adjustment procedure:

Order	Adjustment	Procedure
1	CT601	The oscillating frequency satisfies the specification.

4. V SUB adjustment (VC-158 board)

Purpose: Sets V SUB voltages for the specific CCD unit.

Adjustment error: Smear or coarse picture when the camera shoots the high contrast subject.

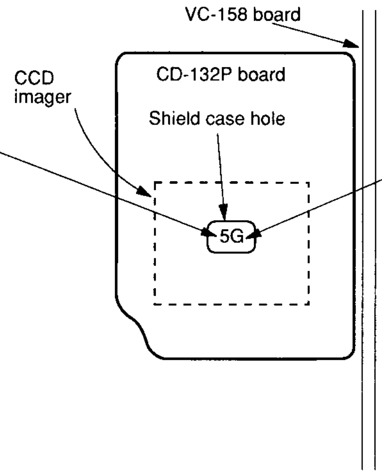
Subject	Not required
Measurement point	Not required
Measuring equipment	Not required
Adjustment page	F
Adjustment address	04
Specification	Refer to Table 7-1-1. "VSUB voltage code"

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	04		Change the data using the PLAY and STOP to input the V SUB data as shown in Table 7-1-1.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

V RG voltage code

Code	Data
1	33
2	4E
3	69
4	84
5	9F
6	BA
7	D5



(example)
When the display is 5G,
VRG Data=9F, V_{SUB} Data=7C.

V_{SUB}. voltage code

Code	Data	Code	Data
E	70	Q	AE
F	76	R	B4
G	7C	S	BA
H	83	T	C1
J	89	U	C7
K	8F	V	CD
L	95	W	D3
M	9B	X	D9
N	A2	Y	E0
P	A8	Z	E6

Table 7-1-1

5. V RG adjustment (VC-158 board)

Purpose: Sets V RG voltages for the specific CCD unit.

Adjustment error: No picture at low illumination (dark)

Subject	Not required
Measurement point	Not required
Measuring equipment	Not required
Adjustment page	F
Adjustment address	05
Specification	Refer to Table 7-1-1. "V RG voltage code"

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	05		Change the data using the PLAY and STOP to input the V SUB data as shown in Table 7-1-1.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

6. HALL adjustment

Subject	Not required
Measurement point	DDS display on the EVF or monitor TV
Measuring equipment	
Adjustment page	F
Adjustment address	06 07
Specification	IC to 20 at IRIS OPEN 8C to 90 at IRIS CLOSE

Purpose: Variation of the HALL element outputs is removed by adjusting amplifier gain and offset. The HALL elements detect the lens iris position.

Adjustment error: Oscillation of lens iris, or incorrect white balance indoor and outdoor.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	D	03	21	After setting the data, press the PAUSE button.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation 2)
4	6	02	03	After setting the data, press the PAUSE button.
5	6	01	03	After setting the data, press the PAUSE button.
6	F	06	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W_2.
7	F	06	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data (note) is W1.
8	6	01	01	After setting the data, press the PAUSE button.
9	F	06	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_1.
10	F	06	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_2.
11				Convert the data W_1, W_2, K_1 and K_2 into the decimal numbers. The result decimal numbers are W_1', W_2', K_1' and K_2'. (Use the 7-80 page 〈 How to convert the hexadecimal number to decimal number 〉 or 7-79 page "Hexadecimal→Decimal Conversion Table".
12				Calculate the following equation (decimal number calculation) to obtain X_1'. $A' = W_2' + K_1' - W_1' - K_2'$ ··························equation 1 $B' = W_1' - K_1'$ ···equation 2 $X1' = \frac{1808 + (48 \times A') - (16 \times B')}{A'}$ ············equation 3
13				Convert the decimal number X_1' to the hexadecimal number to obtain X_1. (Round the number X_1 to count fractions of 0.5 and over as a unit and cut away the rest.)
14	F	06		Set the data X_1 (obtained at step 13).
15				Press the PAUSE button.
16	F	07		Change the data using the PLAY and STOP until 1E appears on the DDS display.
17				Press the PAUSE button.
18	6	01	03	After setting the data, press the PAUSE button.
19				If the DDS display shows the data in the range from 8C to 90, it indicates the end of adjustment, and proceed to the item "Processing after Adjustments". If it is not, use the DDS display data as W_0 and proceed to step 20 and followings.

Note: Lower two digits of the data which is displayed at the right bottom of he EVF or TV monitor.

Order	Page	Address	Data	Procedure
20				Convert the value W0 to a decimal value to obtain the value W0'.
21				Calculate the value X_2' from the following equation (decimal calculation).
				$C' = W_0' - B' - 29$ ··································equation 4
				$X_2' = \frac{(113 - B') \times (X_1' - 48) + (48 \times C')}{C'}$ ·········equation 5 (The values X_1' and B' are obtained from the equations 2 and 3 in steps 11 and 12.)
22				Convert the value X_2' to a hexadecimal number to obtain X_2. (Round the number X2 to count fractions of 0.5 and over as a unit and cut away the rest.)
23	F	06		Set the data X_2 (which is the result of calculation in step 22).
24				Press the PAUSE button.
25	F	07		Change data using PLAY and STOP button until 8E appears on the DDS display.
26				Press the PAUSE button.
27	6	01	01	After setting the data, press the PAUSE button.
28				Confirm that the DDS display shows the data in the range from IC to 20.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	01	00	After setting the data, press the PAUSE button.
3	6	00	00	After setting the data, press the PAUSE button. (End 2)
4	D	03	00	After setting the data, press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End 1)

Related adjustments:

"IRIS IN/OUT adjustment"

7. Flange back adjustment

Purpose:	Automatic flange back adjustment of inner focus lens
Adjustment error:	Loss of focus when switched between auto focus and manual focus.

Subject	Chart for flange back adjustment (Refer to page 7-5 (Fig. 7-1-5.))
	(Placed 2000 ±5 mm in front of the lens with illumination of 300 ±50 lux.)
Measurement point	Confirm the focus on monitor TV.
Measuring equipment	
Adjustment page	F
Adjustment address	16
	17
	18
	19
	1A
	1B
	1D

Note 1: Set the camera-shake correction switch to off before starting the adjustment.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Check that the center of the flange back adjustment chart coincides with th center of the monitor display at both TELE and WIDE ends of the zoom lens.
3	6	21		Confirm that data is 00.
4	6	01	13	After setting the data, press the PAUSE button.
5	6	01	15	After setting the data, press the PAUSE button. (The adjustment data is automatically stored in the page: F, address 16 to 1B and 1D.)
6	6	21		Confirm that data is 01.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)

Processing after Adjustments:

Order	Procedure
1	Turn the main power supply (7.2 V) OFF first, then ON. (If this step is not performed, the camera will be out of focus.)

8. Flange back check

Subject	Siemenstar chart (Placed 2000 ±5 mm in front of the lens with illumination of 200 ±50 lux.)
Measurement point	Confirm focus on monitor TV
Measuring equipment	
Specification	Picture must have good focus at both TELE and WIDE ends.

Note 1: It is judged from the page A display on the adjustment remote commander if the picture has good focus while the auto focus is ON.

1) Set data: 0C to the page:6, address: 02.
2) Focus condition can be known from the page A display.

A: 00 : XX

→ (odd number: Picture is in focus.
even number: Picture is out of focus.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Place a Siemenstar chart at 2 meters in front of lens.
2				Decrease illumination to the chart down to a point before noise appears on monitor TV, in order to fully open the IRIS.
3	6	32	02	After setting the data, press the PAUSE button.
4	6	33	01	After setting the data, press the PAUSE button.
5				Shoot the Siemenstar chart at TELE end.
6				Confirm that the image is in focus. (note1).
7	6	25	01	After setting the data, press the PAUSE button.
8				Shoot the Siemenstar chart at WIDE end.
9				Confirm that the image is in focus.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	32	00	After setting the data, press the PAUSE button.
3	6	33	00	After setting the data, press the PAUSE button.
4	6	25	00	After setting the data, press the PAUSE button. (End)

9. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement point	VIDEO output terminal
Measuring equipment	Oscilloscope and monitor TV
Specification	A = B, C = D, t = 0±0.1msec

Note 1: Confirm that the "Camera-shaking correction" is turned OFF.

Setting procedure:

Order	Procedure
1	Turn OFF the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust direction and zoom of camera so that the picture frame is adjusted as specified by Fig. 7-1-2 and Fig. 7-1-4.
4	Write down markings on the picture frame on the monitor screen. If the "color bar chart standard picture frame" or "white pattern standard picture frame" is specified in the following adjustment items, obtain this picture frame.

Confirm with an oscilloscope

1. Horizontal rate

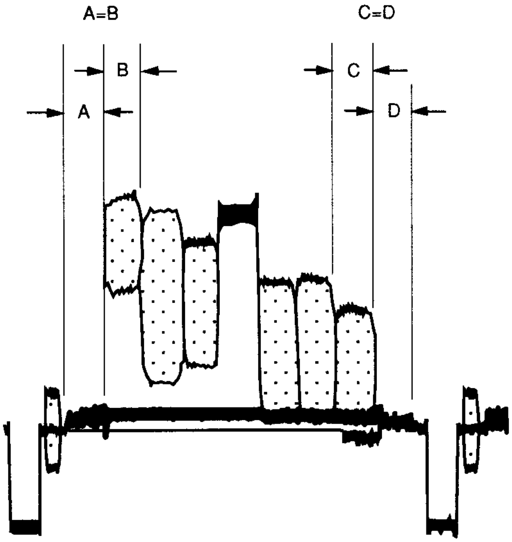


Fig. 7-1-7

2. Vertical rate

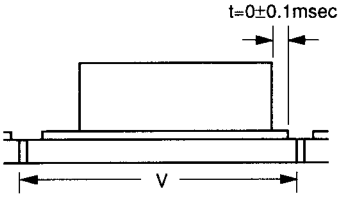


Fig. 7-1-8

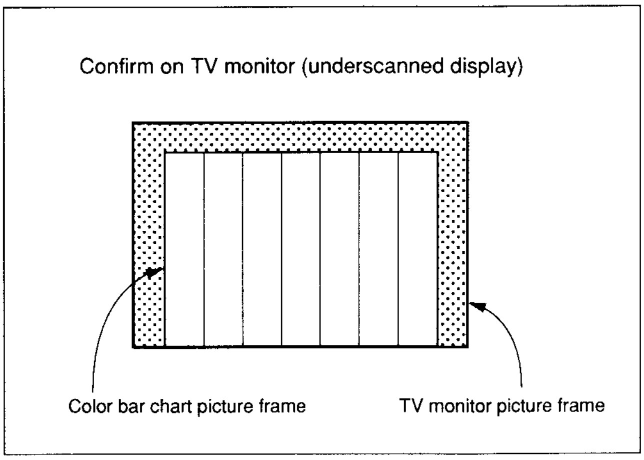

Confirm on TV monitor (underscanned display)
Color bar chart picture frame
TV monitor picture frame

Fig.7-1-9.

10. Color reproduction adjustment

Subject	Color bar chart standard picture frame
Measurement point	VIDEO output terminal
Measuring equipment	Vectorscope
Adjustment page	F
Adjustment address	08 09 0A 0B
Specification	Each spot must be located within the specified color reproduction zone on a vectorscope display.

Purpose: Adjust the three primary color matrix coefficients for correct color reproduction.

Adjustment error: Poor color reproduction

Note 1: Confirm that the "Camera-shaking correction" is turned OFF.

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	6	03	00	After setting the data, press the PAUSE button. (Setting)	
3	F	10 63	F1 66	After setting the data, press the PAUSE button.	
4	F	66~6D	00	After setting the data, press the PAUSE button. (Take note of the data in the addresses 66 to 6D before inputting data.)	
5	F	50	02	After setting the data, press the PAUSE button.	
6		08 09 0A 0B		Change the data using the PLAY and STOP buttons so that each spot must be located within the specified color reproduction zone on a vectorscope display. Press the PAUSE button for each address.	Weighting OFF mode.

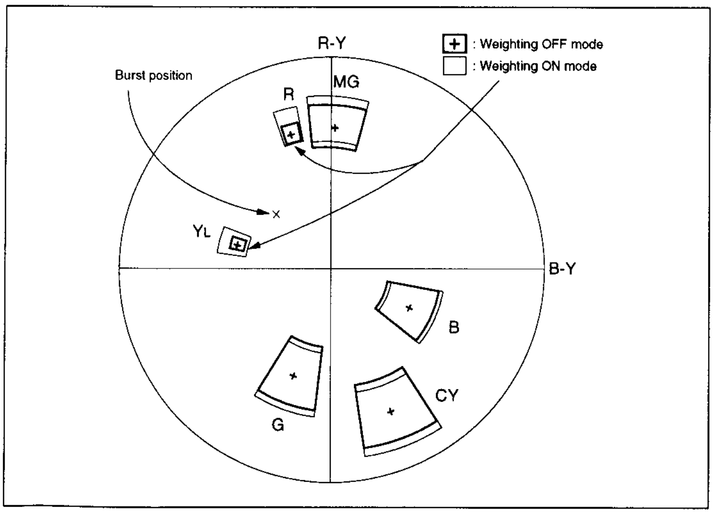


Fig.7-1-10.

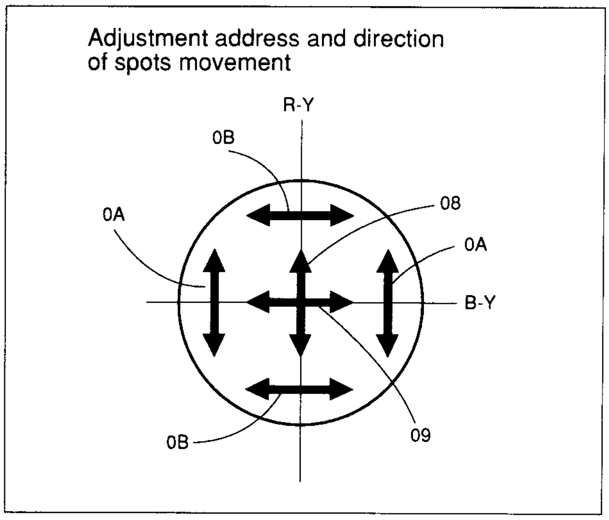

Adjustment address and direction of spots movement

Fig. 7-1-11.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Condition
1	F	63	26	After setting the data, press the PAUSE button.	
		10	E0	After setting the data, press the PAUSE button.	
		50	24	After setting the data, press the PAUSE button.	
		66~6D		Set the data which has been noted in the previous step 4, to the addresses 66 to 6D.	
2	6	03	10	After setting the data, press the PAUSE button. (Setting)	
3	6	00	00	After setting the data, press the PAUSE button. (End)	

Related Adjustments:

"Auto white balance reference data input" "Auto white balance adjustment"

11. IRIS IN/OUT adjustment

Purpose:	Measure the light level and write data into EEPROM for indoor/outdoor identification in auto white balance.
Adjustment error:	Incorrect white balance

Subject	White pattern standard picture frame
Measurement point	EVF or DDS display of monitor TV
Measuring equipment	
Adjustment page	F
Adjustment address	13 14

Note 1: Confirm that the "Camera-shaking correction" is turned OFF.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	D	03	21	After setting the data, press the PAUSE button.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation 2)
4	6	02	0E	After setting the data, press the PAUSE button so that the LIGHT LEVEL appears in page: A.
5	6	01	0B	After setting the data, press the PAUSE button. Subtract 15D0 from the page: A data. Upper eight bits of the subtraction result is named X1 (one byte data).(ND0.8 shutter mode)
6	F	13		Change the data to X1 (calculation result in step 5.)
7				Press the PAUSE button.
8	6	01	09	After setting the data, press the PAUSE button. Subtract 0DF0 from the page: A data. Upper eight bits of the subtraction result is named X0 (one byte data).(ND0.5 shutter mode)
9	F	14		Change the data to X0 (calculation result in step 8.)
10				Press the PAUSE button.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	01	00	After setting the data, press the PAUSE button.
3	6	00	00	After setting the data, press the PAUSE button. (End 2)
4	D	03	00	After setting the data, press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End 1)

The page: A data appears on DDS of monitor TV.

12. MAX GAIN adjustment

Purpose: Sets the minimum illumination level.

Adjustment error: Normal video level cannot be obtained at low illumination (dark).

Subject	White pattern standard picture frame
Measurement point	EVF or DDS display of monitor TV
Measuring equipment	
Adjustment page	F
Adjustment address	15 22
Specification	Data must be ±04 of the DDS displayed data.

Note 1: Confirm that the "Camera-shaking correction" is turned OFF.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	D	03	21	After setting the data, press the PAUSE button.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation 2)
4	2	00	01	After setting the data, press the PAUSE button.
5	2	42	01	After setting the data, press the PAUSE button.
6	2	40	58	After setting the data, press the PAUSE button.
7	2	41	54	After setting the data, press the PAUSE button.
8	6	02	01	After setting the data, press the PAUSE button.
9	6	01	19	After setting the data, press the PAUSE button to show the AGC gain on the page A (DDS display on monitor).
10	F	15		Change data using PLAY and STOP buttons until the AGC gain on the DDS display satisfies the specification. This data is X.
11	F	22		Input data X1 which is obtained by X1 = A7 − X/2, and press the PAUSE button.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	02	00	After setting the data, press the PAUSE button.
3	6	00	00	After setting the data, press the PAUSE button. (End 2)
4	D	03	00	After setting the data, press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End 1)

13. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment page	F
Adjustment address	0C, 0D 0E, 0F

Note: Confirm that the "Camera-shaking correction" is turned OFF.

Note: The "Color reproduction adjustment" must have been completed before making this adjustment.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power OFF then to ON.
2				Shoot a white pattern with the standard picture frame.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation)
4	6	11		Confirm that data is 00.
5				Wait for two seconds.
6	6	01	11	After setting the data, press the PAUSE button.
7	6	01	0D	After setting the data, press the PAUSE button.
8	6	11		Confirm that data is 01.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1				Execute "Auto white balance adjustment".
2	6	01	00	After setting the data, press the PAUSE button.
3	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

"Auto white balance adjustment"

14. Auto white balance adjustment

Purpose: Adjust for correct auto white balance.
Adjustment error: Poor color reproduction

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14
Measurement point	EVF or DDS display on monitor TV
Measuring equipment	
Adjustment page	F
Adjustment address	11 12
Specification	R ratio A[*1]±40 B ratio B[*2]±40

[*1] A = 2000 + (F9 data) × 10
(ex: If F9 data is A8, A = 2000 + (A8 × 10) is calculated and 2A80 is the specification.)

[*2] B = (FA data) × 100 +80
(ex: If FA data is 5E, 5E80 is the specification because B = (5E × 100) +80.)

Note 1: Make this adjustment after "Auto white balance reference data input" is completed.

Note 2: Confirm that the "Camera-shaking correction" is turned OFF.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Put the C14 color temperature correction filter on the lens.
2	1	00	01	After setting the data, press the PAUSE button. (Preparation 1)
3	D	03	21	After setting the data, press the PAUSE button.
4	6	00	01	After setting the data, press the PAUSE button. (Preparation 2)
5	F	10	D0	After setting the data, press the PAUSE button.
6	6	02	04	After setting the data, press the PAUSE button. And set the R ratio display mode so that the R ratio is displayed on page A.
7	F	11		Change data using the PLAY and STOP buttons until the R ratio data on the DDS display becomes the specification value.
8				Press the PAUSE button.
9	6	02	05	After setting the data, press the PAUSE button. And set the B ratio display mode so that the B ratio is displayed on page A.
10	F	12		Change data using the PLAY and STOP buttons until the B ratio data on the DDS display becomes the specification value.
11				Press the PAUSE button.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	F	10	01	After setting the data, press the PAUSE button.
2	6	02	00	After setting the data, press the PAUSE button.
3	6	00	00	After setting the data, press the PAUSE button. (End 2)
4	D	03	00	After setting the data, press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End 1)

15. White balance check

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14 ND filters 1.0 and 0.3
Measurement point	VIDEO output terminal
Measuring equipment	Vectorscope
Specification	Fig. 7-1-12. A ~C

Note: Confirm that the "Camera-shaking correction" is turned OFF.

Check procedure:

Order	Page	Address	Data	Procedure	Condition
1				Check that the lens is not covered by either filter.	
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
3	6	01	0F	After setting the data, press the PAUSE button.	
4				Check that the white luminance point is located within the circle shown in Fig. A.	Without filter.
5	6	01	00	After setting the data, press the PAUSE button.	
6	6	01	23	After setting the data, press the PAUSE button.	
7				Put the C14 filter on the lens.	
8				Check that the white luminance point is located within the circle shown in Fig. B.	C14 filter.
9				Remove the C14 filter and put ND filter 1.3 (1.0 + 0.3) on the lens.	
10				Check that the white luminance point is located within the circle shown in Fig. C.	ND Filter 1.3

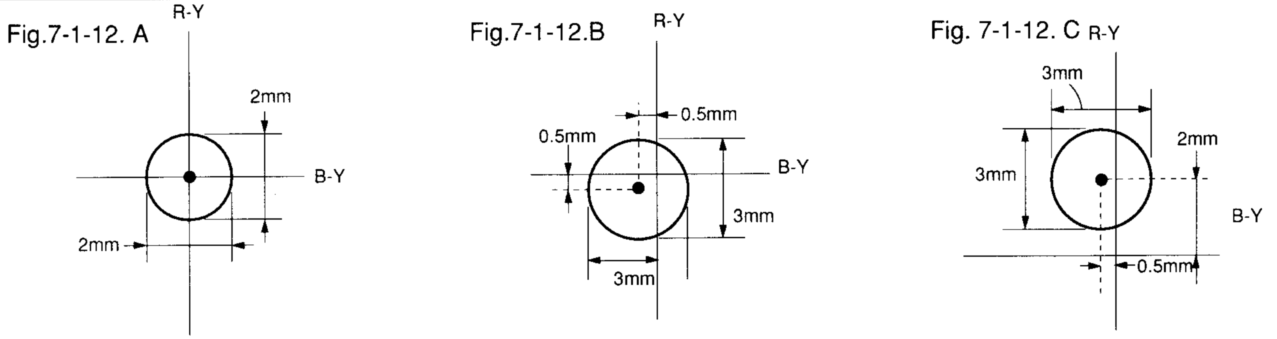


Fig.7-1-12. A

Fig.7-1-12.B

Fig. 7-1-12. C

Fig. 7-1-12.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Condition
1	6	01	00	After setting the data, press the PAUSE button.	
2	6	00	00	After setting the data, press the PAUSE button. (End)	

16. Camera-shaking correction adjustment

The "Camera-shaking correction adjustment" is necessary only when the angular speed sensor is replaced. If microprocessors or EEPROM is not replaced, this adjustment is not necessary. Make operation check only.

Subject	
Measurement point	VIDEO output terminal
Measuring equipment	Oscilloscope or TV monitor
Adjustment page	F
Adjustment address	1E 1F
Specification	Horizontal residual vibration ≦0.5 μsec Vertical residual vibration ≦0.2msec

Note 1: Caution when replacing parts
The two types of parts: ENC05DA and ENC05DB are supplied. Use the same type of sensor as that of the defective sensor. If different type of either ENC05DA or ENC05DB is used, picture can vibrate vertically or horizontally during camera-shake correction. After replacement, make adjustment as described.

Note 2: Caution on angular speed sensor
The angular speed sensor has high precision vibrator inside. If the sensor is dropped, balance of the vibrator is lost resulting in faulty operation. Handle the sensor carefully.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Obtain the vertical data from the following equation using the value indicated on SE401 of the SE board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) [Vertical data] $h = \frac{1.03}{\text{sensor sensitivity value}} \times 82D$
3	F	1E		Set the [Vertical data] "h" value to the page F, address 1E and press the PAUSE button.
4				Obtain the horizontal data from the following equation using the value indicated on SE402 of the SE board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) [Horizontal data] $h = \frac{0.98}{\text{sensor sensitivity value}} \times 84D$
5	F	1F		Set the [Horizontal data] "h" value to the page F, address 1F and press the PAUSE button.
6				Confirm that "Camera-shaking correction adjustment" works correctly.
7	6	00	00	After setting the data, press the PAUSE button. (End)

1-3. Electronic viewfinder system adjustments

[Adjustment connector]

Most measurement points of the viewfinder adjustment are concentrated at the CN902 of the VF-79 board. Connect the measuring equipment to the CN902 via the measuring pin tool. The following table shows the pin numbers and signal names of the CN902.

Pin No.	Signal Name	Pin No.	Signal Name
1	LC COM	2	EVF GND
3	G OUT	4	13.5V
5	NC	6	12V
7	R OUT	8	B OUT
9	NC	10	PCO

Multi CPC	Parts code: J-6082-311-A
or	
Measuring pin tool for LCD	Parts code: J-6082-192-A

[Video input signal for adjustment]

If the signal column specifies the "Color bar signal with the chroma and burst signals turned OFF", input the color bar signal whose chroma and burst signals are turned OFF. Confirm that the signal level at VF-78 board CN851 pin ⑤ has 1.00 V p-p before starting adjustment.

Color bar signal whose chroma and burst signals are turned OFF.

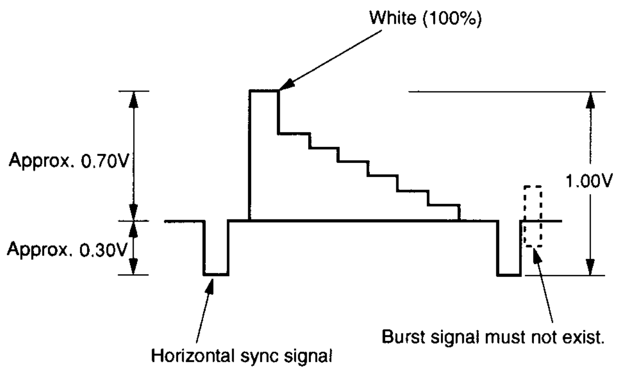


Fig. 7-1-13

1.Power supply voltage check

Mode	Record
Measuring equipment	Digital voltmeter
EVF UNREG	
Measurement point	CN851 pin ⑨ (EVF UNREG) (VF-78 board)
Specification	6.0±0.05Vdc
EVF 15V	
Measurement point	CN851 pin ⑧ (EVF 15V) (VF-78 board)
Specification	15.0±0.1Vdc
EVF 5V	
Measurement point	CN851 pin ⑦ (EVF 5V) (VF-78 board)
Specification	4.80±0.05Vdc
12V	
Measurement point	CN901 pin ⑭ (VF-79 board)
Specification	12.0Vdc±0.3Vdc
13.5V	
Measurement point	CN901 pin ⑮ (VF-79 board)
Specification	13.5±0.3Vdc

2. EVR initial data input

Mode	Stop
Signal	Any signal
Adjustment page	D

Order	Procedure
1	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Select page:D and input the following data together with address and press the PAUSE button each time. (Press the PAUSE button of remote control at each setting of data.)
3	Set the data: 00 to the page:1, address:00, and press the PAUSE button.

Address	Data	Adjustment
A4	A0	Adjust
A5	75	Fixed
A6	50	Adjust
A7	7A	Adjust
A8	6A	Adjust
A9	70	Adjust
AA	90	Adjust
AB	35	Adjust
AC	7A	Fixed
AD	7A	Fixed
AE	70	Fixed
AF	F0	Fixed

Table 7-1-2.

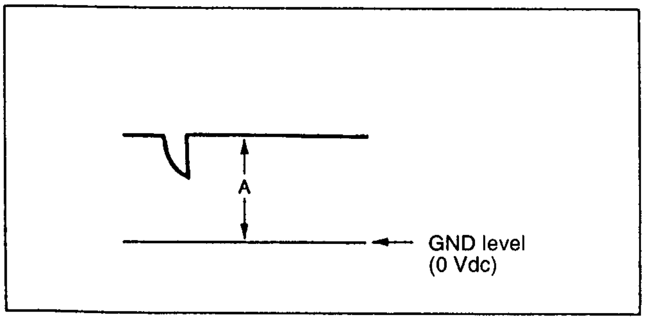
3. VCO adjustment (VF-79 board)

Purpose: Obtain a constant TG frequency.
Adjustment error: Big adjustment error can collapse picture

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off.
Measurement point	CN902 pin ⑩ (PCO)
Measuring equipment	Oscilloscope (DC range)
Adjustment page	D
Adjustment address	AA
Specification	A = 1.8±0.1V

Adjustment procedure:

Order	Procedure
1	Calibrate GND level of an oscilloscope.
2	Set data: 01 to the page:1, address:00, and press the PAUSE button.
3	Change the data of page: D, address: AA using the PLAY and STOP buttons until the PCO voltage (A) satisfies the specification.
4	Press the PAUSE button of the adjustment remote commander.
5	Set data: 00 to the page:1, address:00, and press the PAUSE button.



4. BRIGHT adjustment (VF-79 board)

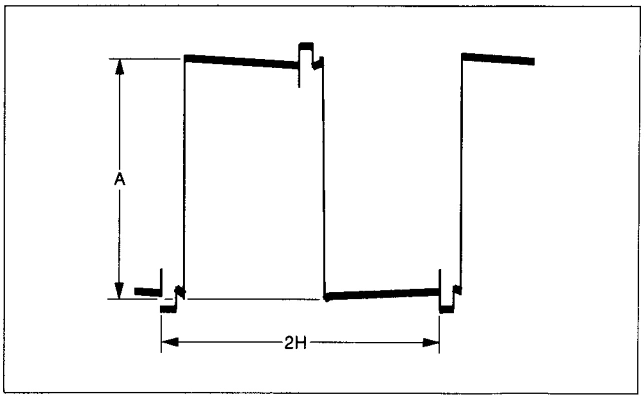
Purpose: Adjust EVF picture brightness.
Adjustment error: Picture saturation (white saturation) or black saturation

Mode	Record
Signal	No signal
Measurement point	CN902 pin ③ (G OUT)
Measuring equipment	Oscilloscope
Adjustment page	D
Adjustment address	A4
Specification	A=7.0±0.1Vp-p

Adjustment procedure:

Order	Procedure
1	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Change the data of page: D, address: A4 using the PLAY and STOP buttons until the potential difference (A) between the inverted waveform pedestal and the non-inverted waveform pedestal satisfies the specification.
3	Press the PAUSE button of the adjustment remote commander.
4	Set data: 00 to the page:1, address:00, and press the PAUSE button.

Related adjustment:
"White balance adjustment"



5. CONTRAST adjustment (VF-79 board)

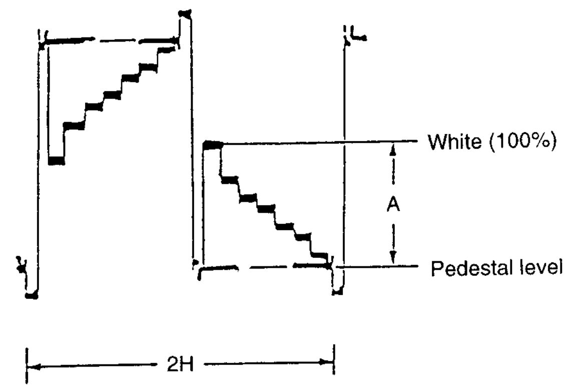
Purpose: Adjust contrast of EVF picture.

Adjustment error: Details black will be lost, or white saturation/black compressed picture.

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	CN902 pin ③ (G OUT)
Measuring equipment	Oscilloscope
Adjustment page	D
Adjustment address	A9
Specification	A=2.0±0.1Vp-p

Adjustment procedure:

Order	Procedure
1	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Change the data of page: D, address: A9 using the PLAY and STOP buttons until the peak white 100% level (A) satisfies the specification.
3	Press the PAUSE button of the adjustment remote commander.
4	Set data: 00 to the page:1, address:00, and press the PAUSE button.



6. Back-light current consumption adjustment (VF-78 board)

Purpose: Maintains the brightness of the back-light constant.

Adjustment error: Brightness becomes too bright or too dark.

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	CN851 pin ⑨ (EVF UNREG) (Check that the power supply voltage stays with the rated range.)
Measuring equipment	Ammeter
Adjustment page	D
Adjustment address	AB
Specification	55±3mA

Preparation: Turn off the power supply to CN851 pin ⑰ (SENSOR 5V) by removing a inductor L854 from the VF-78 board) only during this adjustment before starting this adjustment.

Note: Make adjustment 30 seconds after the main power is turned ON.

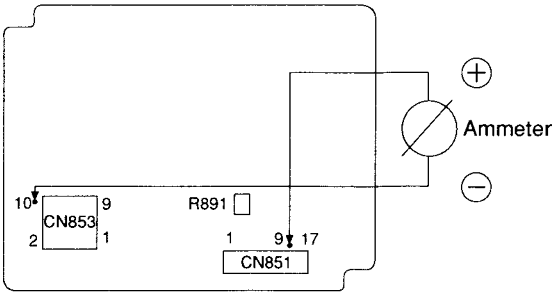
Adjustment procedure:

Order	Procedure
1	Confirm that the voltage at CN851 pin ⑦ is 6.0±0.1Vdc. Confirm that the voltage at CN851 pin ⑧ is 15.0 ±0.1Vdc. Confirm that the voltage at CN851 pin ⑨ is 4.8 ±0.05Vdc.
2	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Change the data of page: D, address: AB using the PLAY and STOP buttons until the current consumption satisfies the specification.
3	Press the PAUSE button of the adjustment remote commander.
4	Set data: 00 to the page:1, address:00, and press the PAUSE button.

After completing the adjustment, reconnect power to CN851 pin ⑰ (SENSOR 5V) as before.

Method to connect an ammeter

- Remove R891 from the VF-78 board.



- Connect ⊕ probe of an ammeter to CN851 pin⑨.
- Connect ⊖ probe of an ammeter to CN853 pin⑩.

Fig.7-1-14

7. White balance adjustment

Purpose: Adjust for correct white balance
Adjustment error: Poor color reproduction of LCD picture

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	Check on the LCD screen
Measuring equipment	
Adjustment page	D
Adjustment address	A7 A8
Specification	The LCD screen must have no color.

Adjustment procedure:

Order	Procedure
1	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Confirm that the LCD screen have no color. If it has color, change the data of the page:D, addresses:A7 and A8 until the LCD screen has no color.
3	Press the PAUSE button of the adjustment remote commander.
4	Set data: 00 to the page:1, address:00, and press the PAUSE button.

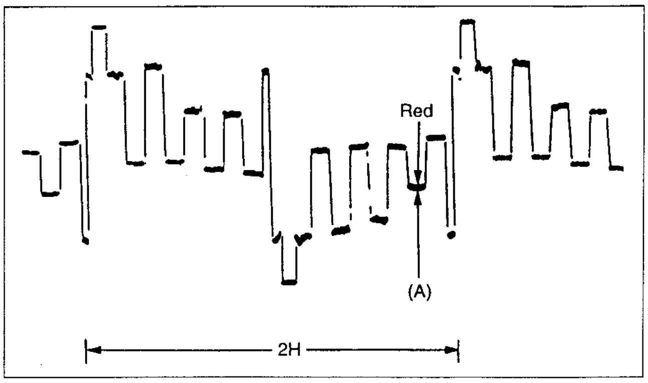
8. BURST CLEANING adjustment (VF-79 board)

Purpose: Adjust for correct hue.
Adjustment error: The EVF picture may have different color tone.

Mode	Record
Signal	Color bar signal
Measurement point	CN902 pin ⑧ (B OUT)
Measuring equipment	Oscilloscope
Adjustment page	D
Adjustment address	A6
Specification	A≦0.05Vp-p

Adjustment procedure:

Order	Procedure
1	Set data: 01 to the page:1, address:00, and press the PAUSE button.
2	Change the data of the page:D, address:A6 using the PLAY and STOP buttons until residual red component satisfies the specification.
3	Press the PAUSE button of the adjustment remote commander.
4	Set data: 00 to the page:1, address:00, and press the PAUSE button.



9. AUTO OFF level adjustment (VF-78 board)

Purpose: Maintains the AUTO-OFF level constant by adjusting the AUTO-OFF sensor sensitivity.

Mode	Record	
Signal	No signal	
Subject	Chart for AUTO off level adjustment (Refer to page 7-5, Fig. 7-1-6.) [Place the chart at 14 cm position from the front of lens.]	
Adjustment element	RV851	
Specification	Distance to active the AUTO-OFF	
	Power of EVF	OFF → ON: L = 10 ±2 cm
	Power of EVF	ON → OFF: L= 12 ±2 cm

Adjustment procedure:

Order	Procedure
1	Turn RV851 fully counter-clockwise. Then start turning it clockwise and stop RV851 turning at the position where power of EVF is turned OFF for the first time.
2	Confirm that the distance to activate AUTO-OFF satisfies the specification.

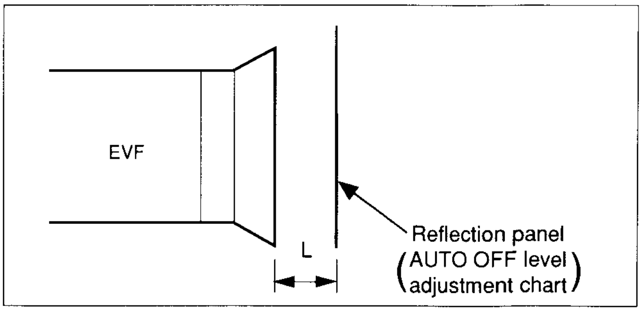


Fig. 7-1-15

1-4. LCD adjustment

1. LCD system adjustment (PD-61 board)

Note 1: The backlight (fluorescent lamp is driven by high voltage AC power supply.
Therefore, be careful not to touch the back light holder with hand or you will receive an electric shock.

Note 2: When replacing the LCD unit, be careful not to damage the LCD unit with static electricity.

[Adjustment connector]

Most measurement points of the LCD adjustment are concentrated at the CN001 of the PD-61 board. Connect the measuring equipment to CN001 via the measuring pin tool. The following table shows the pin numbers and signal names of CN001.

Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	N.C
3	VG	4	N.C
5	VR	6	SPD
7	SYNC	8	$\overline{\text{HSY}}$
9	GND	10	GND

1. Multi CPC Parts code:J-6082-311-A
   or
   Measuring pin tool for LCD Parts code: J-6082-192-A
2. CPC conversion board for LCD
   Parts code: J-6082-290-A
3. Alignment tape (WR5-4CL) Parts code: 8-967-995-56

[Video input signal for adjustment]

If the signal column specifies the "Color bar signal with the chroma and burst signals turned OFF", input the color bar signal whose chroma and burst signals are turned OFF. Confirm that the signal level at VS-113 board CN421 pin ⑮ has 1.00 V p-p before starting adjustment.

Note: Check the video signal in RECORD mode.

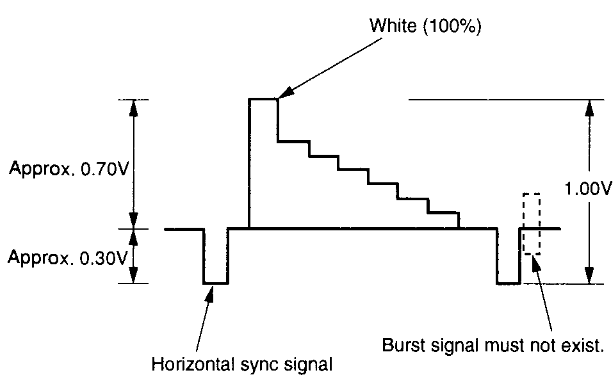


Fig. 7-1-16 Color bar signal with chroma and burst signals switched OFF.

[Power supply voltage adjustment]

Adjust the power supply voltage to be input to the battery terminal so that the voltage across PD-61 board CN002 pins ㉘/㉙ (BL UNREG) and pins ㉚ to ㉜ (BL UNREG GND) is 6.5±0.1Vdc.

Power supply voltage check (PD-61 board)

Subject	Any subject
Measuring equipment	Digital voltmeter
EVF4.9V check	
Measurement point	CN002 Pin ⑬
Specification	4.86±0.05Vdc (GND : CN002 Pin ㉖)
−7.5 V check	
Measurement point	CN002 Pin ㉒
Specification	−7.5±0.05Vdc (GND : CN002 Pin ㉖)
+11 V check	
Measurement point	CN002 Pin ㉓
Specification	11.0±0.1Vdc (GND : CN002 Pin ㉖)
−18 V check	
Measurement point	CN002 Pin ㉔
Specification	−18.0±0.1Vdc (GND : CN002 Pin ㉖)
PANEL 4.9 V check	
Measurement point	CN002 Pin ㉕
Specification	4.8±0.05Vdc (GND : CN002 Pin ㉖)

2. EVR initial data input

Mode	Stop
Signal	Any signal
Adjustment page	D

Note : Do not rewrite the EE PROM data except when it is necessary such as replacement of PD-61 board IC104.

Adjustment procedure:

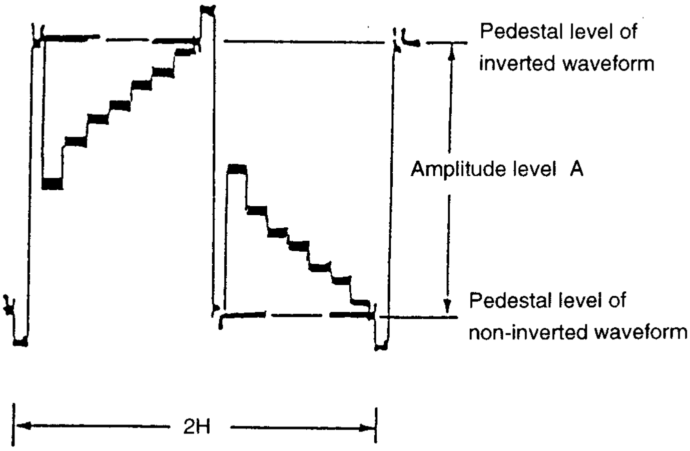
Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B0	90	After setting the data, press the PAUSE button.
		B1	62	
		B2	A4	
		B3	82	
		B4	6F	
		B5	89	
		B6	76	
		B7	73	
		B8	7A	
		B9	7C	
		BA	7F	
		BB	A5	
3	1	00	00	After setting the data, press the PAUSE button. (End)

3. BRIGHT adjustment

Purpose: Adjusts video signal level to drive the LCD panel.

Adjustment Error: Picture on LCD will be white saturated or black compressed.

Mode	Record
Signal	Color bar signal with the chroma and burst signal switched OFF.
Measurement point	PD-61 board CN001 pin ③ (VG)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B0
Specification	A=4.7±0.1Vp-p


Pedestal level of inverted waveform
Amplitude level A
Pedestal level of non-inverted waveform
2H

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B0	41 ~ BF	Change data using the PLAY and STOP buttons until the VG signal amplitude (A) has the specification value.
3				press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

Note: The adjustment data must be within the range from 41 to BF.

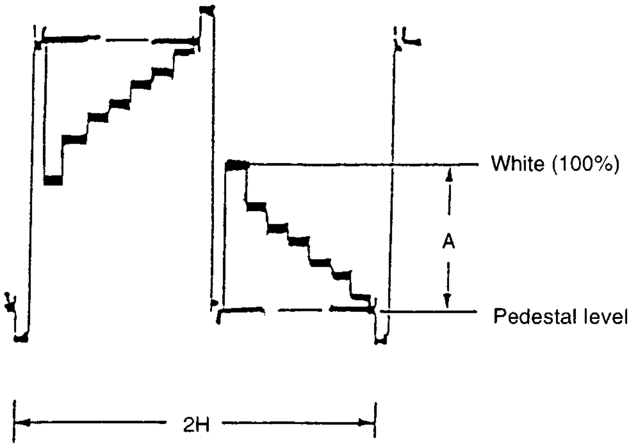
Related Adjustment: CONTRAST adjustment

4. CONTRAST adjustment

Purpose: Adjusts contrast of LCD picture

Adjustment Error: Details of black will be lost, or white saturated/black compressed picture.

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	PD-61 board CN001 pin ③ (VG)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B5
Specification	A=3.7±0.1Vp-p



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B5		Change data using the PLAY and STOP buttons until the amplitude (A) has the specification value.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

Note: After this adjustment, check BRIGHT of viewfinder.
If it is incorrect, adjust it again.

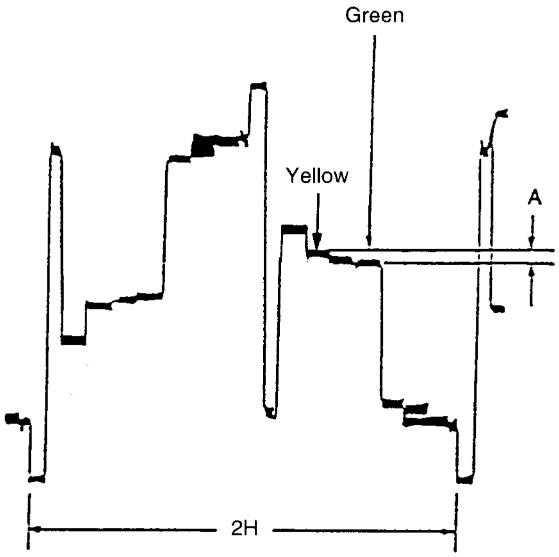
Related Adjustment: BRIGHT adjustment

5. COLOR adjustment

Purpose: Adjusts color for standard level.

Adjustment Error: Color will be too much or too small.

Mode	Record
Signal	Color bar signal (with chroma and burst signals)
Measurement point	PD-61 board CN001 pin ③ (VG)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B1
Specification	A=0.1±0.05Vp-p



Adjustment procedure:

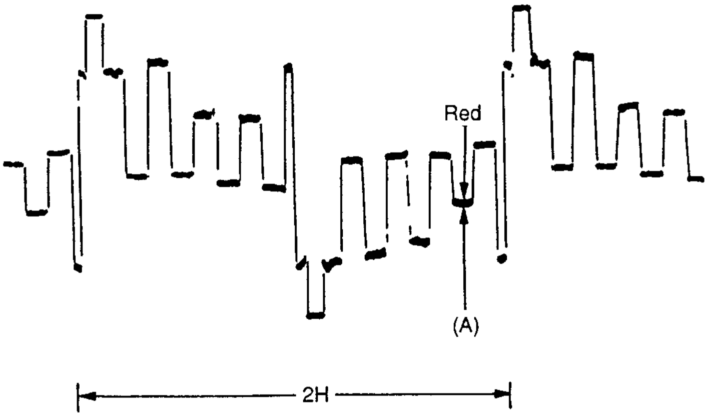
Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B1		Change data using the PLAY and STOP buttons until the amplitude (A) has the specified value.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

6. BURST CLEANING adjustment

Purpose: Adjust for standard hue.

Adjustment Error: Unnatural hue.

Mode	Record
Signal	Color bar signal (with chroma and burst signals)
Measurement point	PD-61 board CN001 pin ① (VB)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B2
Specification	A≦0.05Vp-p



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B2		Change data using the PLAY and STOP buttons until the amplitude (A) has the specified value.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

7. V. COM adjustment

Purpose: Adjusts for correct voltage of the DC bias voltage of the common electrode signal of the LCD panel.

Adjustment Error: Details of the LCD picture will be lost. Flicker occurs easily. Vertical stripes will appear.

Mode	Playback PAUSE
Signal	Alignment tape: color bar for operation check segment (WR5-4CL)
Measurement point	To be confirmed on LCD display
Measuring equipment	
Adjustment page	D
Adjustment address	B7

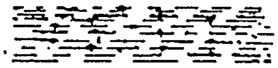
Preparation: Connect the PD-61 board CN002 pin ⑦ (PAL60) to pin ④ (GND).

Adjustment procedure:

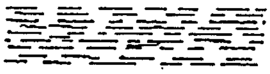
Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	1B	6D	After setting the data, press the PAUSE button.
3				Establish the PB PAUSE state using operation keys of the camera.
4	D	B7		Change data using the PLAY and STOP buttons of the adjustment remote commander and observe the noise bar portion. Find the noise bar showing noise similar to head clogging. Keep pressing the PLAY button until black dots can be seen clearly. This data is D_A. Then keep pressing the STOP button until black dots can be seen clearly. This data is D_B.
5				Convert the D_A and D_B to the decimal value which are D_A' and D_B'. (Refer to Table 7-5-2. [Conversion Table between hexadecimal and decimal values]. Then calculate D_C' using the equation $D_C' = (D_A' + D_B') \div 2$
6	D	B7		Set data to DC and press the PAUSE button.
7	D	1B	6F	After setting the data, press the PAUSE button.
8	1	00	00	After setting the data, press the PAUSE button. (End)

Note: This adjustment must be executed after the BRIGHT and CONTRAST adjustments are completed.

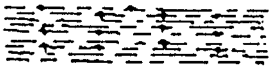
Keep pressing the PLAY button.

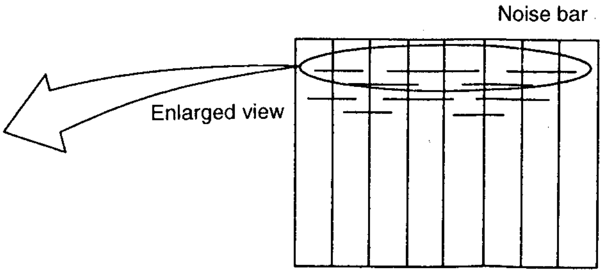


Find the noise bar showing noise similar to head clogging.



Keep pressing the STOP button.

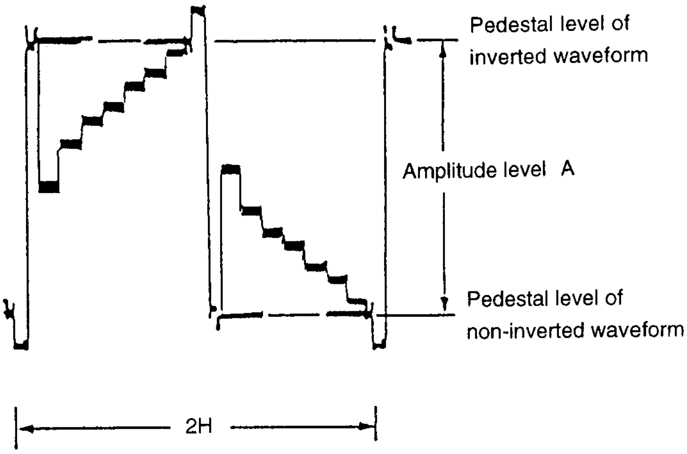




8. White balance preset adjustment (1)

Purpose: Make the preliminary adjust before the white balance final adjustment

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	CH1: PD-61 board CN001 pin ③ (VG) CH2: PD-61 board CN001 pin ⑤ (VR)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B3
Specification	Difference of amplitude between the VR and VG signals = 0 ±0.1V


Pedestal level of inverted waveform
Amplitude level A
Pedestal level of non-inverted waveform
2H

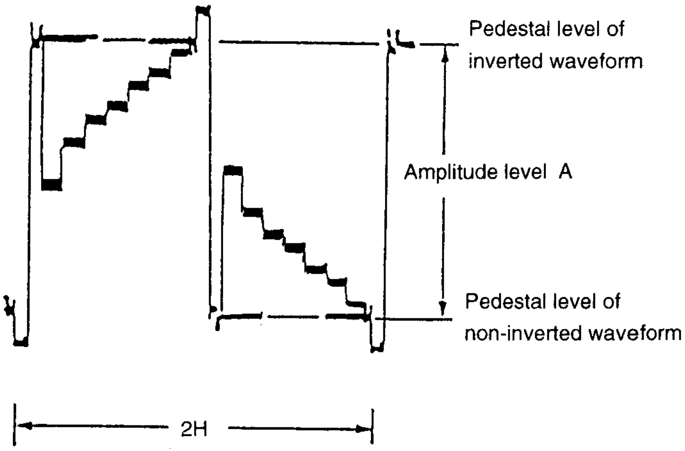
Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B3		Change the B3 data using the PLAY and STOP buttons until the VR and VG signals have the same amplitude.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

9. White balance preset adjustment (2)

Purpose: Make the preliminary adjust before the white balance final adjustment

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	CH1: PD-61 board CN001 pin ③ (VG) CH2: PD-61 board CN001 pin ① (VB)
Measuring equipment	Oscilloscope [External trigger: IC103 pin ⑪ (FRP)]
Adjustment page	D
Adjustment address	B4
Specification	Difference of amplitude between the VB and VG signals = 0 ±0.1V


Pedestal level of inverted waveform
Amplitude level A
Pedestal level of non-inverted waveform
2H

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00 ·	00	After setting the data, press the PAUSE button. (Preparation)
2	D	B4		Change the B4 data using the PLAY and STOP buttons until the VR and VG signals have the same amplitude.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

10. White balance adjustment

Purpose: Adjust for correct white balance.
Adjustment Error: Color reproduction on LCD display will be poor.

Mode	Record
Signal	Color bar signal with chroma and burst signals switched OFF
Measurement point	To be confirmed on LCD display
Measuring equipment	
Adjustment page	D
Adjustment address	B3 B4
Specification	Image on the LCD display must not have any color.

Note1: Start adjustment within 30±5 seconds after the back-light turns ON.
Note2: During adjustment, the LCD protection film must be peeled off.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	B3 B4		Change the B3 and B4 data using the PLAY and STOP buttons until the image on the LCD display has no color.
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

11. VCO adjustment

Purpose: Sets the VCO free-run frequency.
Adjustment Error: Incorrect picture on EVF

Mode	Stop
Signal	No signal
Measurement point	CN001 pin ⑧ ($\overline{\text{HSY}}$)
Measuring equipment	Frequency counter
Adjustment page	D
Adjustment address	B6
Specification	f=15625±30Hz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Press the DATA SCREEN button of the remote commander to disappear the display.
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)
3	2	00	00	After setting the data, press the PAUSE button.
4	2	B0	08	After setting the data, press the PAUSE button.
5	2	9E	00	After setting the data, press the PAUSE button.
6	D	B6		Change data using the PLAY and STOP buttons until the oscillating frequency satisfies the specification.
7				Press the PAUSE button.
8	2	00	00	After setting the data, press the PAUSE button.
9	2	B0	00	After setting the data, press the PAUSE button.
10	2	9E	88	After setting the data, press the PAUSE button.
11	1	00	00	After setting the data, press the PAUSE button. (End)

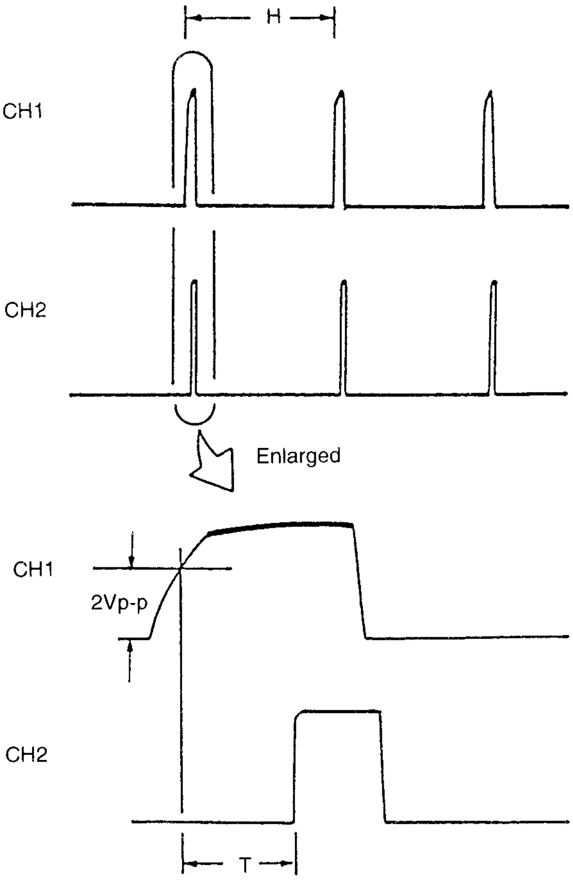
12. Horizontal display position adjustment (PD-61 board)

Purpose: Adjusts the horizontal position of picture on LCD display.

Adjustment Error: Picture position will be shifted left or right.

Mode	Record
Signal	Color bar signal
Measurement point	CH1: PD-61 board CN001 pin ⑦ (H SYNC) CH2: PD-61 board CN001 pin ⑥ (SPD)
Measuring equipment	Oscilloscope
Adjustment page	D
Adjustment address	BA
Specification	T=4.0±0.1 μsec

Note: Set the LCD so that it is directed toward the lens.
(The waveform is different depending upon direction.)



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	BA		Change data using the PLAY and STOP button until the delay time "T" satisfies the specification.
3				After setting the data, press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

6-2. MECHANISM SECTION ADJUSTMENTS

Refer to the separate "8 mm Video Mechanism Section Adjustment Manual VI TK Mechanism " for adjustment, check procedure and mechanical parts replacement.

2-1. HOW TO OPERATE THE MECHANISM AFTER THE CASSETTE COMPARTMENT IS REMOVED

1. How to load a cassette tape:

1) Refer to "3. Disassembly" and turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
3) Select page: 1, address: 00, set data :01 and press the PAUSE button.
4) Select page: D, address: 02, set data: 01 and press the PAUSE button.
5) Set the NORM - ADJUST (HOLD) switch to NORM (OFF) position. (The adjustment remote commander can be disconnected hereafter.)
6) Press the push-switch-1 knob in the direction of arrow which sets the machine into loading mode.
PB, FF/REW and CUE/REV operations are possible.
7) After completing all steps of above operation, be sure to perform "4. Processing after operation".

2. How to establish RECORD mode:

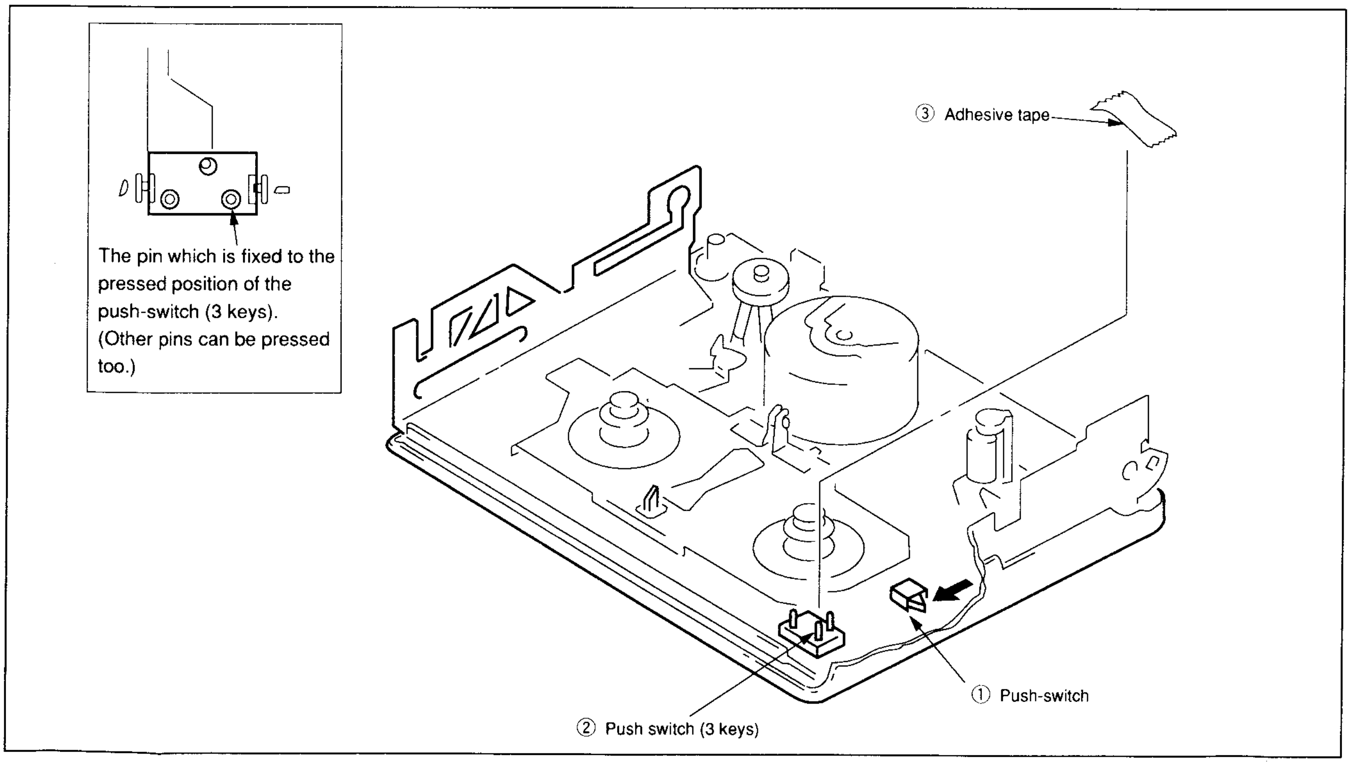
1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of camera).
3) Set the RECORD switch to ON.
(When the test mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

4. Processing after operation

1) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
2) Select page: D, address: 02, set data: 00 and press the PAUSE button.
3) Select page: 1, address: 00, set data :00 and press the PAUSE button.
4) Remove the power supply to the machine.



The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)

2-2.TAPE PATH ADJUSTMENT

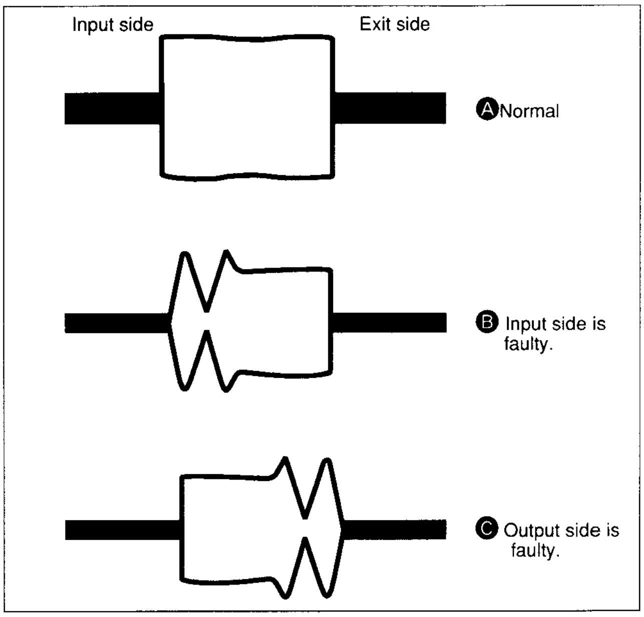
Purpose: Adjusts the head linearity.

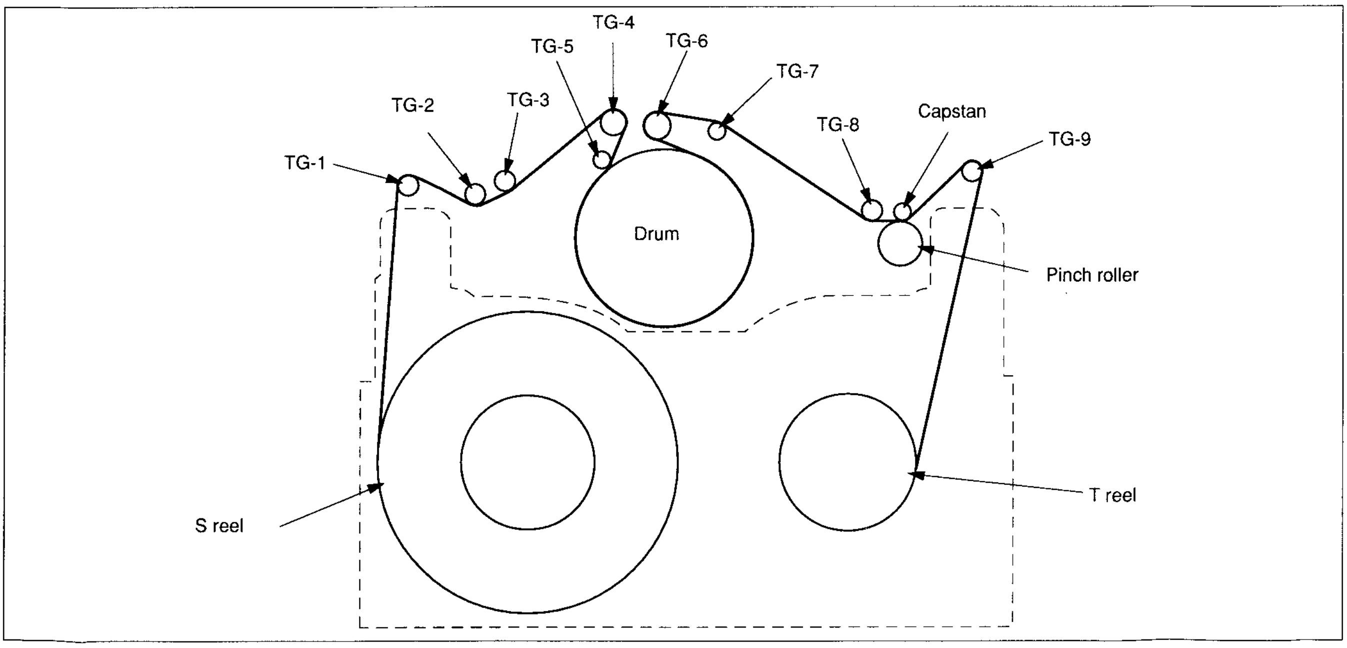
Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

1. Preparations for adjustments
1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
4) Select page: 1, address: 00, set data :01 and press the PAUSE button.
5) Select page: D, address: 02, set data: 03 and press the PAUSE button.
6) Connect an oscilloscope.
   CH1: VS-113 board CN002 pin ⑨.
   External trigger: VS-113 board CN002 pin ④.
7) Playback the tracking alignment tape (WR5-1CP).
8) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform "4. Tape Path Adjustment" of the 8 mm Video Mechanism Section Adjustment Manual VI TK Mechanism .
9) After completing the adjustment, perform "2-1-4. (Page. 6-33) Processing after operation".

VS-113 board CN002

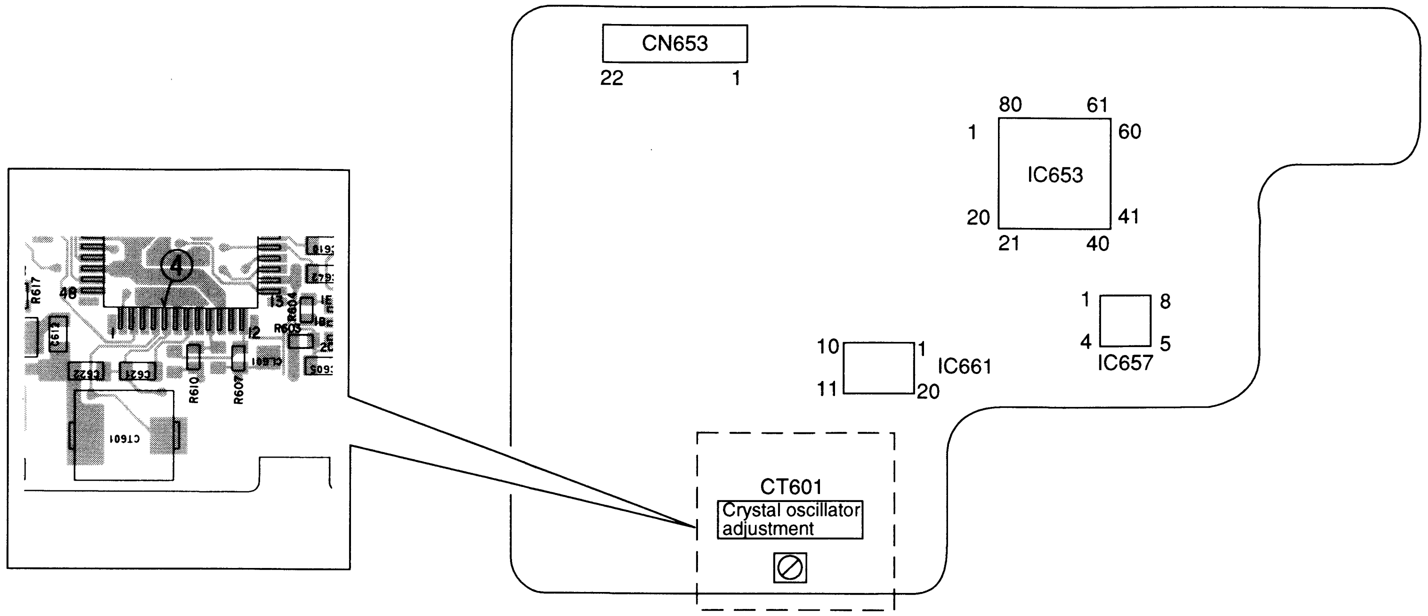
1	LANC SIG
2	LANC DC
3	CAP FG
4	RF SWP
5	1/2 RF SWP
6	PB RF CH1
7	RF GND
8	PB PCM RF
9	PB RF


Input side
Exit side
Ⓐ Normal
Ⓑ Input side is faulty.
Ⓒ Output side is faulty.

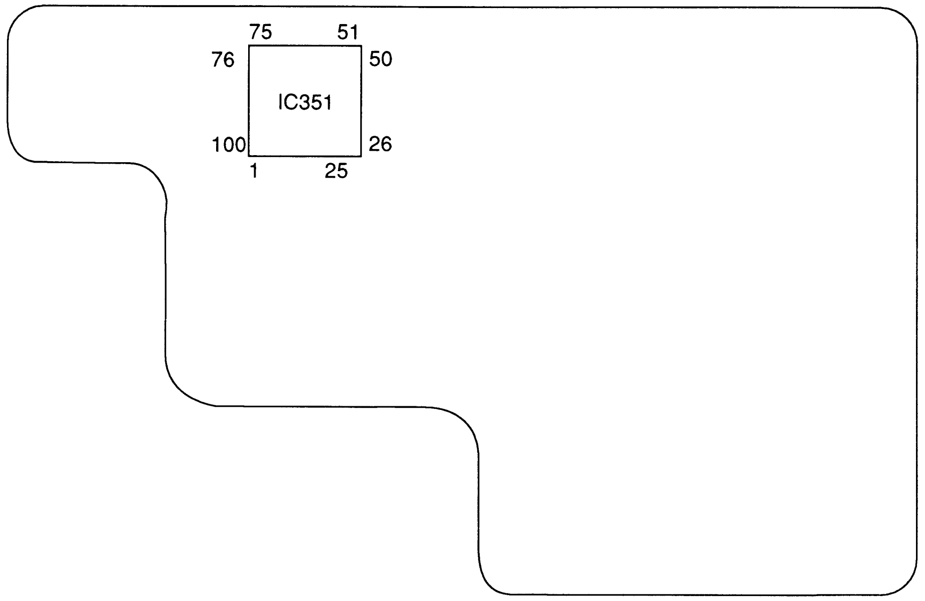

TG-4
TG-5
TG-6
TG-7
TG-2
TG-3
TG-8
Capstan
TG-9
TG-1
Drum
Pinch roller
T reel
S reel

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

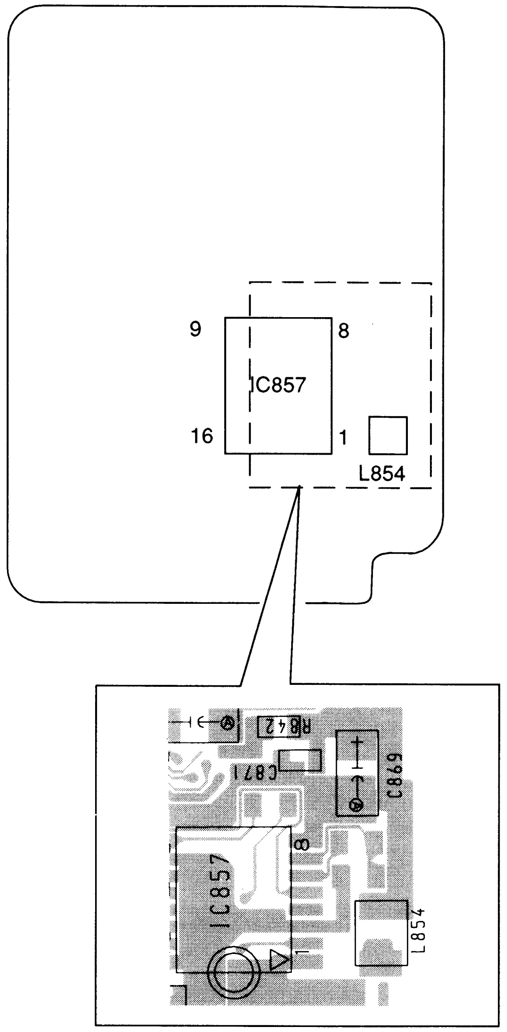
VC-158 BOARD（SIDE A）


CN653
22
1
80
61
1
60
IC653
20
41
21
40
1
8
4
5
IC657
10
1
IC661
11
20
CT601
Crystal oscillator adjustment
R617
48
4
C612
R610
R607
CT601

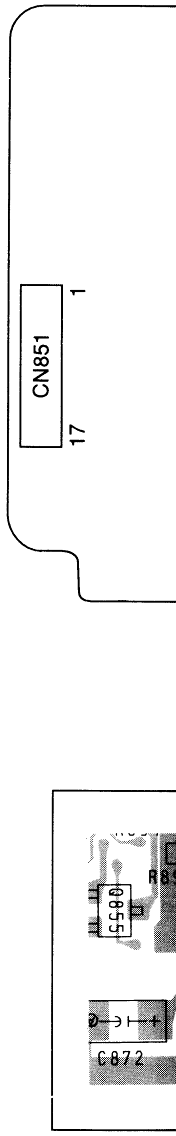
VC-158 BOARD（SIDE B）


75
51
76
50
IC351
100
26
1
25

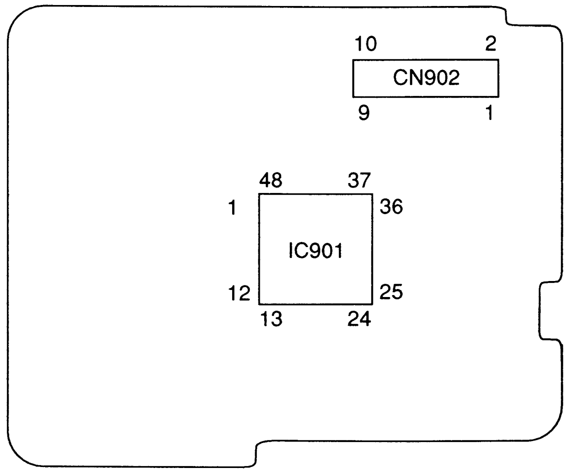
VF-78 BOARD（SIDE A）


9
8
IC857
16
1
L854
R842
C871
C869
8
IC857
L854

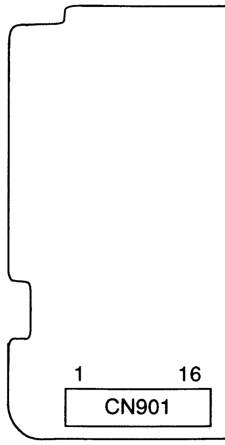
VF-78 B


CN851
1
17
Q855
C872

VF-79 BOARD（SIDE A）


10
2
CN902
9
1
48
37
1
36
IC901
12
25
13
24

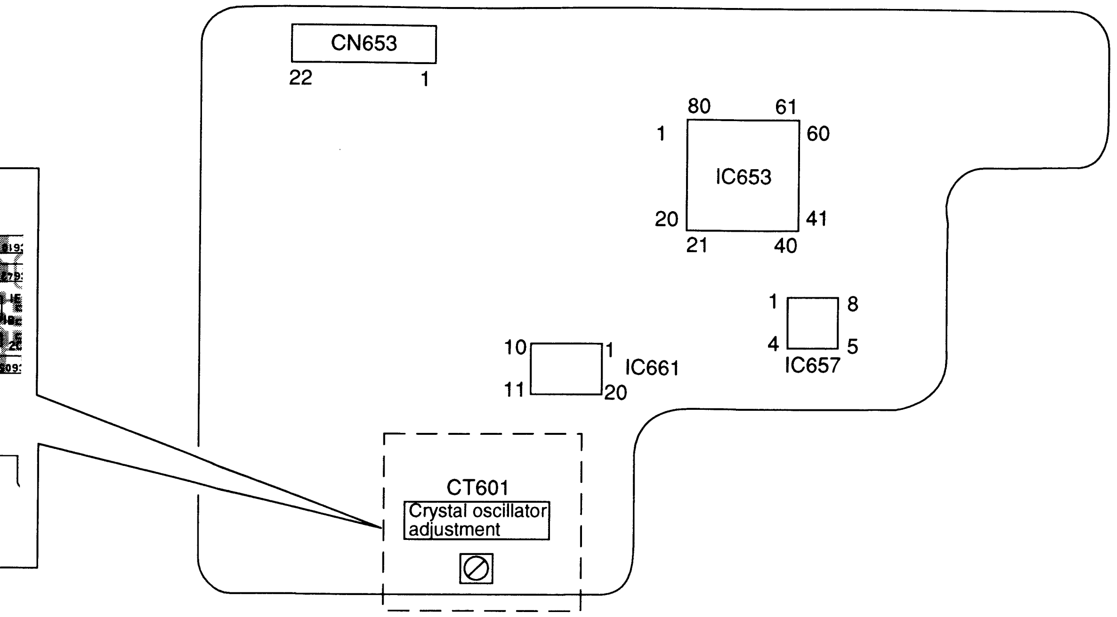
VF-79 B



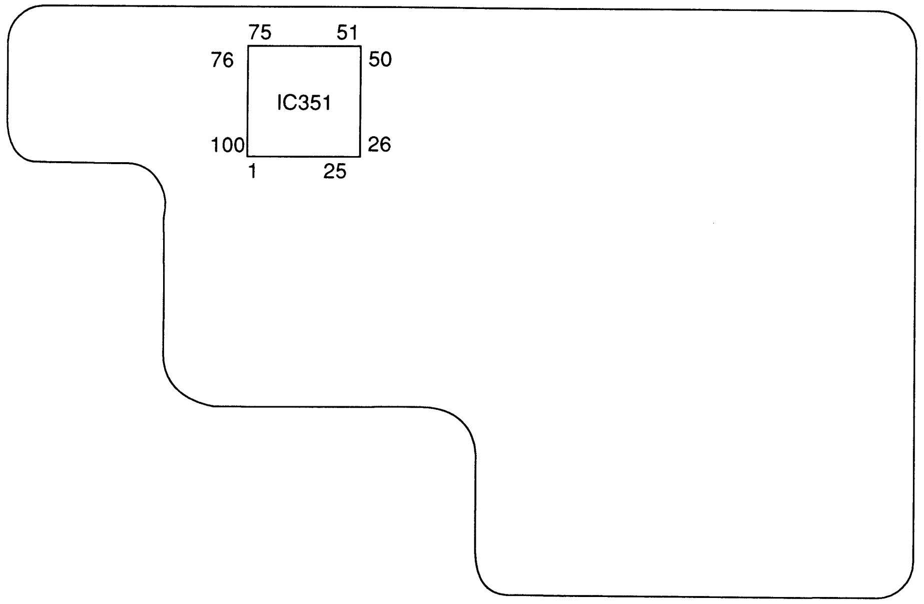
7-35

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

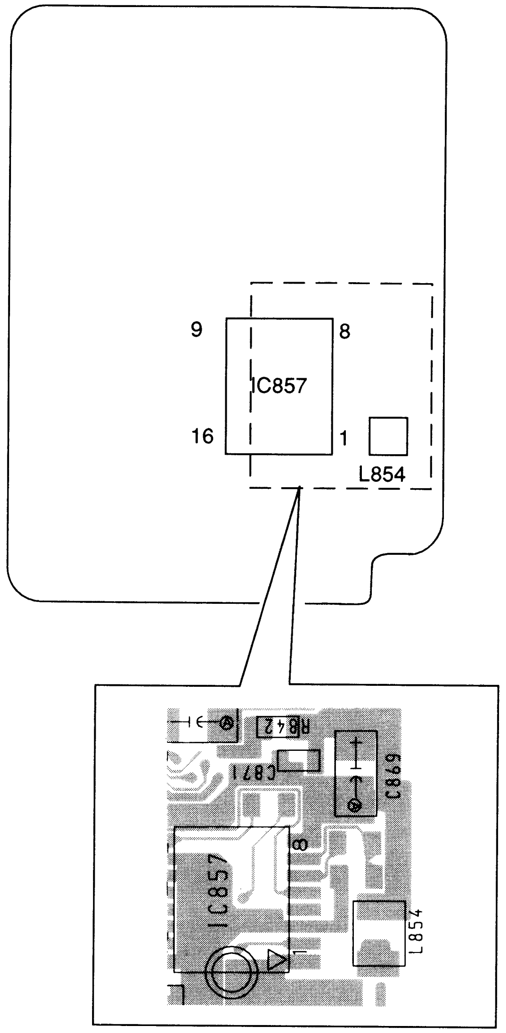
VC-158 BOARD (SIDE A)


CN653
22
1
IC653
80
61
1
60
20
41
21
40
IC657
1
8
4
5
IC661
10
1
11
20
CT601
Crystal oscillator adjustment

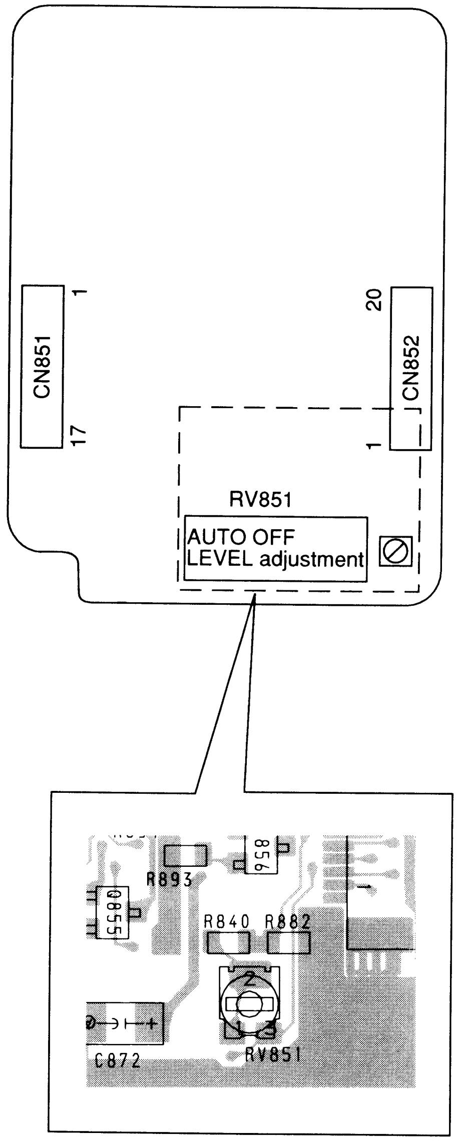
VC-158 BOARD (SIDE B)


IC351
75
51
76
50
100
26
1
25

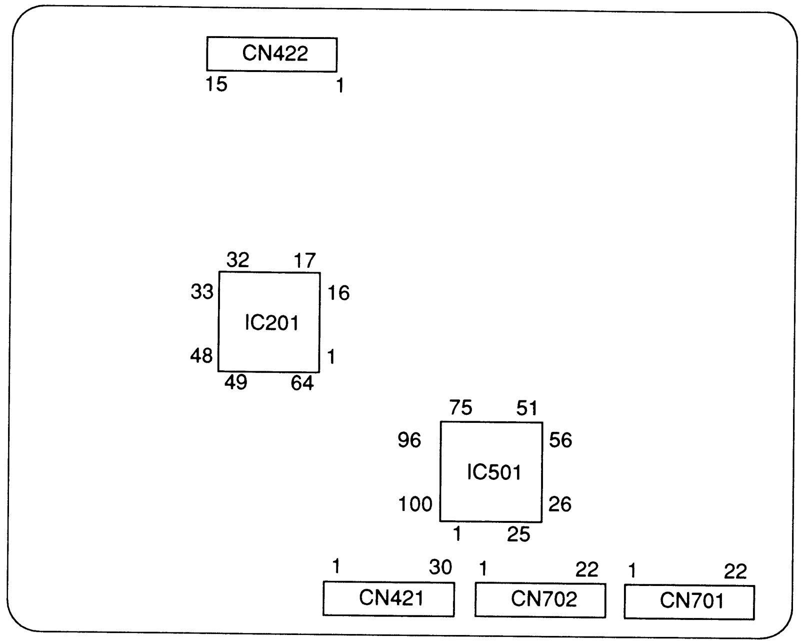
VF-78 BOARD (SIDE A)


IC857
9
8
16
1
L854
R842
C871
C869
IC857
8
L854

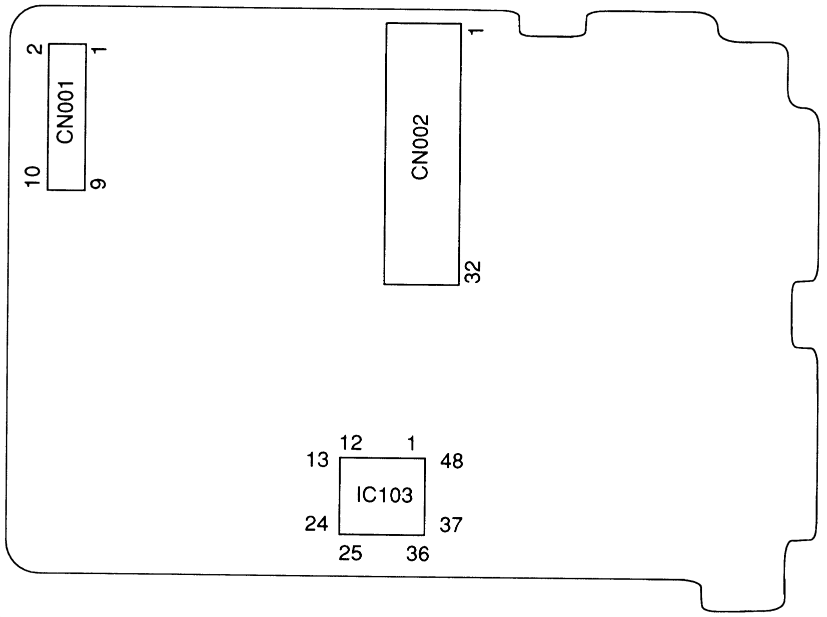
VF-78 BOARD (SIDE B)


CN851
1
17
CN852
20
1
RV851
AUTO OFF LEVEL adjustment
R893
Q856
Q855
R840
R882
C872
RV851
2
1
3

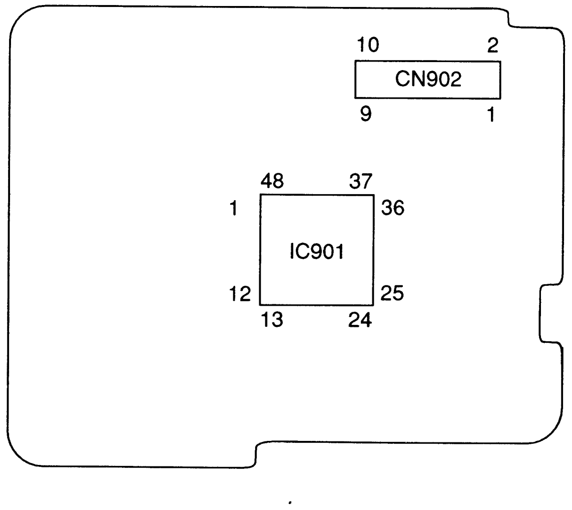
VS-113 BOARD (SIDE A)


CN422
15
1
IC201
32
17
33
16
48
1
49
64
IC501
75
51
96
56
100
26
1
25
CN421
1
30
CN702
1
22
CN701
1
22

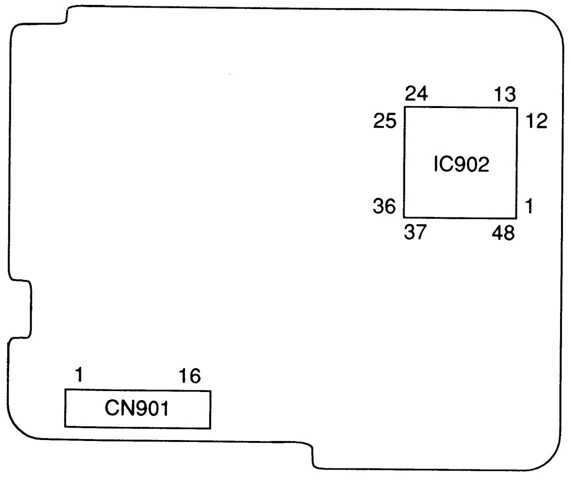
PD-61 BOARD (SIDE A)


CN001
2
1
10
9
CN002
1
32
IC103
12
1
13
48
24
37
25
36

VF-79 BOARD (SIDE A)


CN902
10
2
9
1
IC901
48
37
1
36
12
25
13
24

VF-79 BOARD (SIDE B)


IC902
24
13
25
12
36
1
37
48
CN901
1
16

7 - 40

TABLE OF CONTENTS

7-3. VIDEO SECTION ADJUSTMENT

3-1. PREPARATIONS BEFORE ADJUSTMENT........7-43
- 3-1-1. Equipment required........7-43
- 3-1-2. Precautions on adjustment........7-43
- 3-1-3. Adjustment connector (VS-113 Board CN002)........7-43
- 3-1-4. Equipment connection........7-44
- 3-1-5. Checking the input signal........7-45
- 3-1-6. Alignment tape........7-46
- 3-1-7. Input/Output level and impedance........7-47
- 3-1-8. Record mode (Normal/Hi8)select........7-47

3-2. SYSTEM CONTROL ADJUSTMENT........7-48
- 1. Page D initial value input........7-48
- 2. Battery-Down voltage adjustment........7-48
- 3. Battery-Down voltage check........7-49
- 4. Loading Motor ID DET Adjustment........7-50

3-3. CAPSTAN FG OFFSET ADJUSTMENT........7-51

3-4. ADJUSTMENT POINTS WHEN MAJOR PARTS ARE REPLACED........7-51

3-5. POWER SUPPLY SYSTEM ADJUSTMENT........7-51
- 1. Power supply voltage check (VS-113 board)7-51

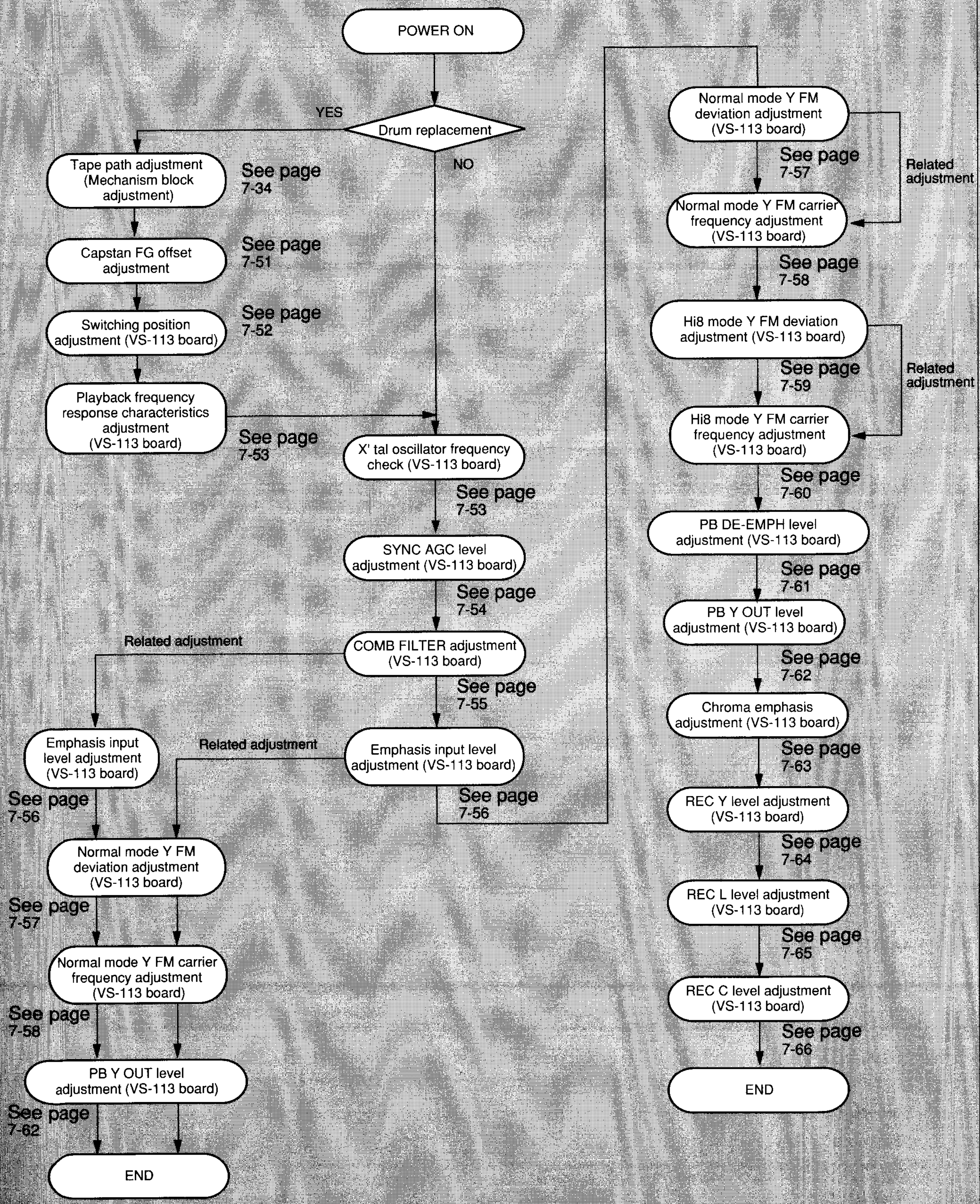
3-6. SERVO SYSTEM ADJUSTMENT........7-52
- 1. Switching position adjustment (VS-113 board)........7-52

3-7. VIDEO SYSTEM ADJUSTMENT........7-52
- 1. Playback frequency response characteristics adjustment (VS-113 board)........7-53
- 2. X' tal oscillator frequency check (VS-113 board)........7-53
- 3. SYNC AGC level adjustment (VS-113 board)........7-54
- 4. Comb filter adjustment (VS-113 board)........7-55
- 5. Emphasis input level adjustment (VS-113 board)........7-56
- 6. Normal mode Y FM deviation adjustment (VS-113 board)........7-57
- 7. Normal mode Y FM carrier frequency adjustment (VS-113 board)........7-58
- 8. Hi8 mode Y FM deviation adjustment (VS-113 board)........7-59
- 9. Hi8 mode Y FM carrier frequency adjustment (VS-113 board)........7-60
- 10. PB DE-EMPH level adjustment (VS-113 board)........7-61
- 11. PB Y OUT level adjustment (VS-113 board)........7-62
- 12. Chroma emphasis adjustment (VS-113 board)........7-63
- 13. REC Y level adjustment (VS-113 board))....7-64
- 14. REC L level adjustment (VS-113 board)........7-65
- 15. REC C level adjustment (VS-113 board)........7-66

7-4. AUDIO SECTION ADJUSTMENT

- 4-1. EE-Output Level Check........7-67
- 4-2. 1.5 MHz deviation adjustment........7-68
- 4-3. 1.7 MHz deviation adjustment........7-69
- 4-4. BPF fo adjustment........7-70
- 4-5. Overall signal level and distortion check........7-71
- 4-6. Separation check........7-71
- 4-7. Overall noise level check........7-71

Adjustment Procedure Flow Chart (Video Section Adjustment)


POWER ON
Drum replacement
YES
NO
Tape path adjustment (Mechanism block adjustment)
See page 7-34
Capstan FG offset adjustment
See page 7-51
Switching position adjustment (VS-113 board)
See page 7-52
Playback frequency response characteristics adjustment (VS-113 board)
See page 7-53
X' tal oscillator frequency check (VS-113 board)
See page 7-53
SYNC AGC level adjustment (VS-113 board)
See page 7-54
COMB FILTER adjustment (VS-113 board)
Related adjustment
See page 7-55
Emphasis input level adjustment (VS-113 board)
Related adjustment
See page 7-56
Emphasis input level adjustment (VS-113 board)
See page 7-56
Normal mode Y FM deviation adjustment (VS-113 board)
See page 7-57
Normal mode Y FM carrier frequency adjustment (VS-113 board)
See page 7-58
PB Y OUT level adjustment (VS-113 board)
See page 7-62
END
Normal mode Y FM deviation adjustment (VS-113 board)
See page 7-57
Related adjustment
Normal mode Y FM carrier frequency adjustment (VS-113 board)
See page 7-58
Hi8 mode Y FM deviation adjustment (VS-113 board)
See page 7-59
Related adjustment
Hi8 mode Y FM carrier frequency adjustment (VS-113 board)
See page 7-60
PB DE-EMPH level adjustment (VS-113 board)
See page 7-61
PB Y OUT level adjustment (VS-113 board)
See page 7-62
Chroma emphasis adjustment (VS-113 board)
See page 7-63
REC Y level adjustment (VS-113 board)
See page 7-64
REC L level adjustment (VS-113 board)
See page 7-65
REC C level adjustment (VS-113 board)
See page 7-66
END

6-3. VIDEO SECTION ADJUSTMENT

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipment are used for video section adjustment.

3-1-1. Equipment required

1) Monitor TV
2) Oscilloscope, dual trace, 30 MHz bandwidth or more with delay mode function.
   (Use 10:1 probe unless otherwise specified.)
3) Frequency counter
4) Pattern generator with VIDEO output
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Parts code: 8-967-995-07
    - For normal mode video frequency response adjustment (WR5-6C)
      Parts code: 8-967-995-17
    - Hi8 mode video frequency response adjustment (WR5-7CE)
      Parts code: 8-967-995-18
    - For confirmation of normal mode operation
      for SP (WR5-5CSP)
      Parts code: 8-967-995-47
      or (WR5-4CSP)
      Parts code: 8-967-995-46
      for LP (WR5-4CL)
      Parts code: 8-967-995-56
    - For confirmation of AFM stereo operation (WR5-9CS)
      Parts code: 8-967-995-28
    - For confirmation of Hi8 mode operation (ME tape)
      for SP (WR5-8CSE)
      Parts code: 8-967-995-48
      for LP (WR5-8CLE)
      Parts code: 8-967-995-57
12) Adjustment remote commander (J-6082-053-B)
13) AFM DEV tool(J-6082-312-A)

3-1-2. Precautions on Adjustment

The EVF (electronic viewfinder) is not necessary for video section adjustment.
Remove the following connector to remove the EVF.
1. VF-78 board CN851 (pin ⑰)

The audio board (MS-26P board) is not necessary except for "Audio System Adjustments". Remove the following connectors.
1. VS-113 board CN801 (pin ㉗)

After completing all adjustments, release the adjustment mode by either of the following two methods.

1) Remove the lithium battery. (In this case, data time and menu setting by users are erased. Input these data again.)
2) Return the data of the address: 00 on page:1 to 00. If the page: 2 data is changed, return the data to the original value.

3-1-3. Adjustment Connector (VS-113 Board CN002)

Some video section adjustment points are concentrated to the VS-113 board CN002. Connect the measuring equipment via the tool (Multi CPC: J-6082-311-A).

Pin No.	Signal Name
1	LANC SIG
2	LANC DC
3	CAP FG
4	RF SWP
5	1/2 RF SWP
6	REC RF
7	RF GND
8	PB PCM RF
9	PB RF

3-1-4. Equipment Connection

Connect the measuring equipment as shown according to the specified input pin (S VIDEO or VIDEO input). Set the power supply switch (Camera/OFF/*PLAYER (VTR) to "*PLAYER (VTR)".

The input pin is specified in the parenthesis ( ) in the signal column of each adjustment item. If nothing is specified, any input pin can be used. The S VIDEO input pin has priority. When making adjustment using the video input pin, remove the input signal connector from the S VIDEO pin.

Note: If the VIDEO input is used for adjustments which specify the S VIDEO input, some specifications of the machine may not be satisfied. Be sure to use the specified video input signal. When adjustments are performed using the S VIDEO signal which is output from another VTR as the input signal of this machine, performance of the machine can be affected by the performance of the VTR connected. So a pattern generator with a Y/C output signal is recommended.

* NOTE)
PLAYER: AEP, UK
VTR : E, Hongkong

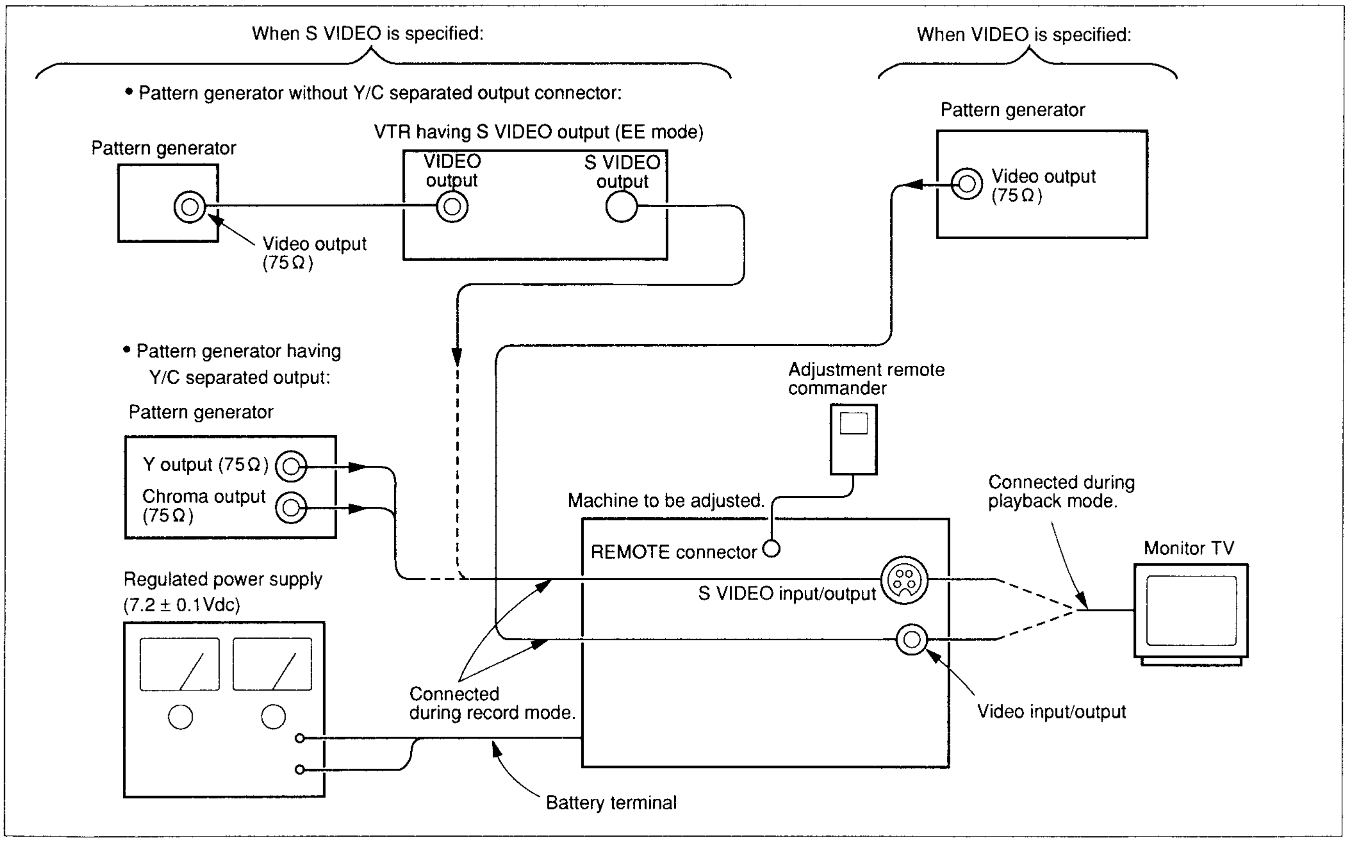

When S VIDEO is specified:
When VIDEO is specified:
• Pattern generator without Y/C separated output connector:
Pattern generator
VTR having S VIDEO output (EE mode)
VIDEO output
S VIDEO output
Video output (75Ω)
Pattern generator
Video output (75Ω)
• Pattern generator having Y/C separated output:
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
Adjustment remote commander
Machine to be adjusted.
REMOTE connector
S VIDEO input/output
Connected during playback mode.
Monitor TV
Regulated power supply (7.2 ± 0.1Vdc)
Connected during record mode.
Video input/output
Battery terminal

Fig 7-3-1.

3-1-5. Checking the Input Signal

Because the video signal supplied from the pattern generator is used as the adjustment signal, the video output must satisfy the required specification.

1. S VIDEO Input Signal

Connect an oscilloscope to the Y signal connector of the S VIDEO input/output connector. Check that the sync signal has about 0.3 V p-p and the video signal has about 0.7 V p-p. (If a VTR with S VIDEO output is used, check that the chroma and burst signals do not exist.) Connect an oscilloscope to the chroma signal connector of the S VIDEO IN connector and check that the burst signal has about 0.3 Vp-p. Check that the amplitude ratio of the burst to the chroma signal is 0.30 : 0.66. The Y and chroma signals used in the adjustment are shown.

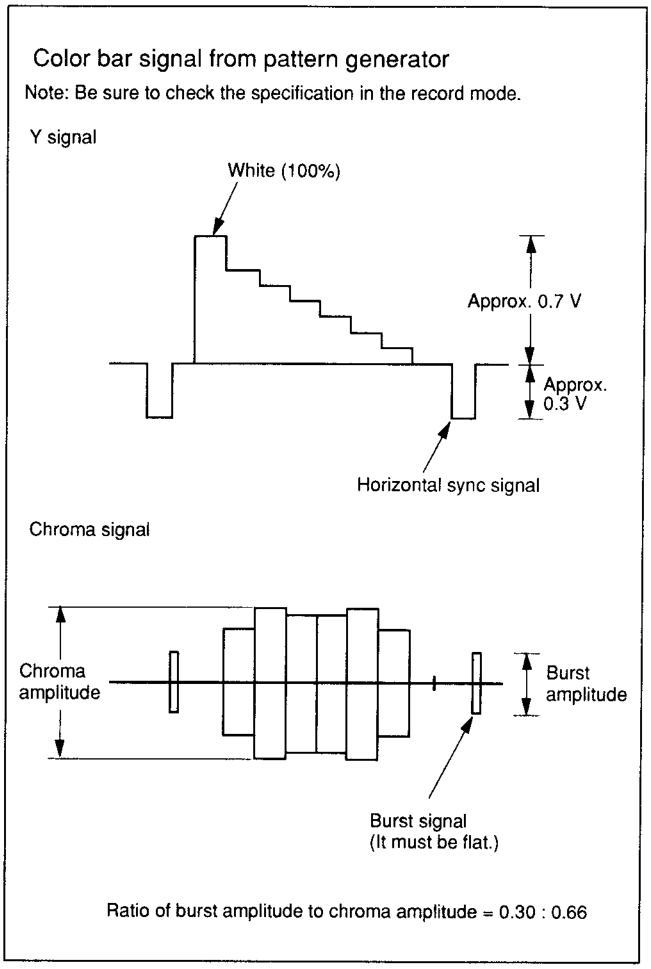

Color bar signal from pattern generator
Note: Be sure to check the specification in the record mode.
Y signal
White (100%)
Approx. 0.7 V
Approx. 0.3 V
Horizontal sync signal
Chroma signal
Chroma amplitude
Burst amplitude
Burst signal (It must be flat.)
Ratio of burst amplitude to chroma amplitude = 0.30 : 0.66

Fig. 7-3-2

2. VIDEO Input Signal

Connect an oscilloscope to the video input/output connector and check that the sync signal has about 0.3 V amplitude, the video signal has about 0.7 V and the burst signal has about 0.3 V. Check that the ratio of the burst signal to the "red" signal is 0.30 : 0.66.

The video signal (color bar) used for adjustment is shown.

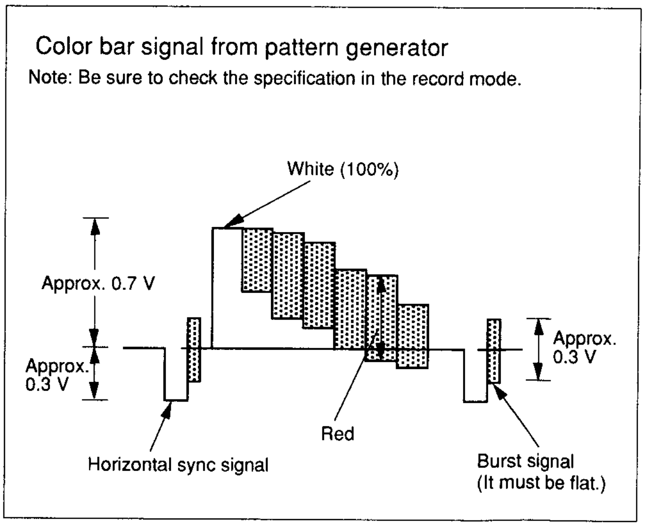

Color bar signal from pattern generator
Note: Be sure to check the specification in the record mode.
White (100%)
Approx. 0.7 V
Approx. 0.3 V
Approx. 0.3 V
Red
Horizontal sync signal
Burst signal (It must be flat.)

Fig.7-3-3

3. How to Set the REC Mode

1. REC key forbidden accept mode cancel
   1. Connect the adjustment remote commander to the LANC terminal.
   2. Turn on the power to the "PLAYER".
   3. Select the HOLD (SERVICE) or ADJ. position of the HOLD (or ADJ.) switch of the adjustment remote commander.
   4. Select the page: 1 address: 00, and set the data to 01.
   5. Select the page: D address: 17, and set the data to 1F.
   6. Press PAUSE button on the adjustment remote commander.

The REC key is accepted through the adove procedure.

Note: After compleating adjustment be sure to perform "3. Procedure after completed the adjustment".

2. REC mode setting
   (Method using adjustment remote commander)
   1. Set the HOLD switch of the adjustment remote commander to the OFF (Normal) position.
   2. Press the REC button set up REC mode.

3. Procedure after completed the adjustment
   Be sure to return the mode to REC key forbidden accept mode after adjustment.
   1. Connect the adjustment remoter commander to the REMOTE terminal.
   2. Turn on the power.
   3. Select the HOLD (SERVICE) or ADJ. position of the HOLD (or ADJ.) switch of the adjustment remote commander.
   4. Select the page: 1 address: 00, and set the data to 01.
   5. Select the page: D address: 17, and set the data to 06.
   6. Press PAUSE button on the adjustment remote commander.
   7. Select the page: 1 address: 00, and set the data to 00.
   8. Press PAUSE button on the adjustment remote commander.

3-1-6. Alignment Tape

The following table shows the alignment tapes available. Use the tape specified in the signal column for each adjustment.

If tape type is not specified in the adjustments which use the "Operation Check" tape, use any type of tape for the checking purpose.

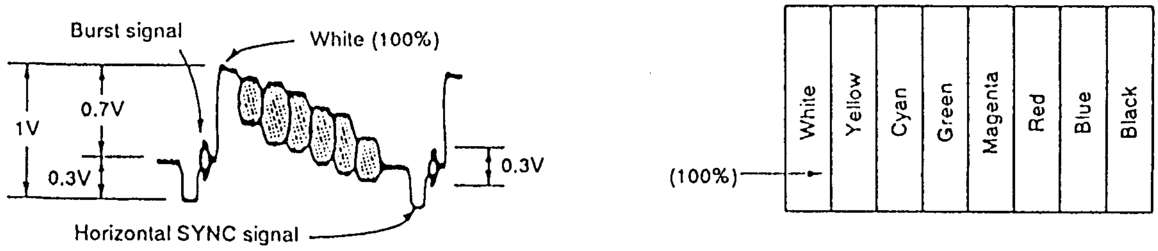
If any type number is not specified when using operation check tape, any type number of the operation check tape can be used.

Name	Record Mode	Tape Type	Tape Speed	Use
Tracking WR5-1CP	Normal	MP	SP	Tape path adjustment Switching position adjustment
Video frequency response adjustment WR5-7CE	Hi8	ME	SP	Frequency response adjustment
Operation check (SP mode) WR5-5CSP	Normal	MP	SP	Operation check
Operation check WR5-8CSE	Hi8	ME	SP	
Operation check WR5-4CL	Normal	MP	LP	
Operation check WR5-8CLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9CS	Normal	MP	SP	For confirmation of AFM stereo operation

Note: Tape type
MP—Metal particle tape
ME—Metal evaporated t

Table 7-3-1.

The color bar signal which is recorded in the alignment tape.
Note: Measured at video input/output connector (across 75 Ω termination).



Color bar signal waveform

Color bar pattern

Fig 7-3-4. Color bar signal of alignment tape

3-1-7. Input/Output Level and Impedance

1. E,Hongkong model

Video input	Pin jack Input signal: 1 Vp-p, 75 Ω unbalance, sync negative
Video output	Pin jack Output signal: 1 Vp-p, 75 Ω unbalance, sync negative
S Video input	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalance, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalance
S Video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalance, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalance
Audio input	Pin jack Input level: −7.5 dBs (0dBs=0.775 Vrms) Input unbalance: Above 47 k Ω
Audio output	Pin jack Specified output: −7.5 dBs Output unbalance: Below 2.2 k Ω

2. AEP,UK model

Video output	Pin jack Output signal: 1 Vp-p, 75 Éə unbalance, sync negative
S Video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalance, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalance
Audio output	Pin jack Specified output: −7.5 dBs Output impedance: Below 2.2 k Ω

3-1-8. Record Mode (Normal/Hi8) Switch

the record mode (normal/Hi8) of this machine is switched as shown below. The playback mode (normal/Hi8) is switched automatically according to the record mode of the tape being played back.

Hi8 Switch (Menu Display)	Tape Used	Record Mode
AUTO	ME	Hi8
	Hi8 MP	
	MP	Normal
OFF	ME	Normal
	Hi8 MP	
	MP	

3-2. SYSTEM CONTROL ADJUSTMENT

1. Page D initial value input

Mode	Stop
Signal	Any signal
Adjustment Page	D
Adjustment Address	00~D3, D4~E3, E4~EF

If the page D data is lost due to some reason, input the page D initial value before starting the adjustment. Refer to " Page D address list" of section " 7-5-4. Service Mode" for the initial values.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	00~D3 E4~EF		Input data (initial values) according to "Page D address list". After setting each data, be sure to press the PAUSE button.
3	D	D4		Find the data of page: F, address 3E. Set the data to page: D, address D4. Press the PAUSE button.
		D5		Find the data of page: F, address 3F. Set the data to page: D, address D5. Press the PAUSE button.
		D6		Find the data of page: F, address 40. Set the data to page: D, address D6. Press the PAUSE button.
		⋮		⋮
		E3		Find the data of page: F, address 4D. Set the data to page: D, address E3. Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)

2. Battery-Down voltage adjustment

Purpose: Determines the battery-down voltage

Adjustment error: Usable period of battery becomes shorter, or picture might be distorted.

Mode	Camera record, auto focus OFF
Subject	any
Measurement point	LCD display of the adjustment
Measuring equipment	remote commander
Adjustment page	D
Adjustment address	07 08 09 0A

Note: Place a shield plate in front of the EVF sensor until the B/L lights.

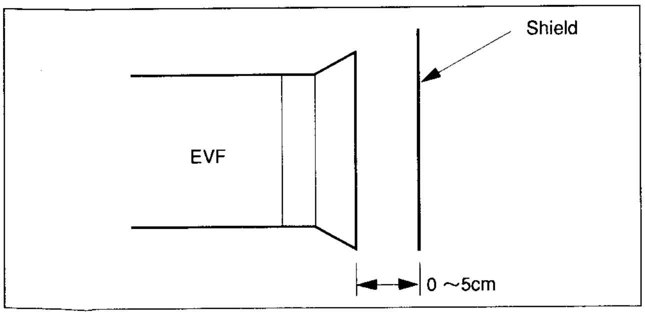


Fig. 7-3-5

Connection

1) Connect a regulated power supply and digital voltmeter as shown.

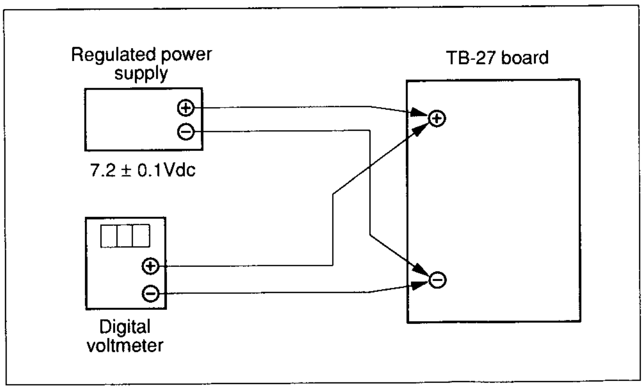


Fig. 7-3-6

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Adjust the output voltage of the regulated power supply until the digital voltmeter indicates 7.20 ±0.01 Vdc.
2				Establish the CAMERA record mode. Set the auto focus OFF.
3	1	00	01	After setting the data, press the PAUSE button. (Preparation)
4	D	03	01	After setting the data, press the PAUSE button.
5				Adjust the output voltage of the regulated power supply until the digital voltmeter indicates 5.60 ±0.01 Vdc.
6	2	00	01	After setting the data, press the PAUSE button.
7	2	49		Take reading of the displayed data on the adjustment remote commander. This is the "DEND" data.
8	D	06		After setting the "DEND" data, press the PAUSE button.
9				Use the following equations to calculate the adjustment data. Then enter the calculated data to each adjustment address.
10	D	07		$D_{07}'=\text{DEND}'+05_{h}$
		08		$D_{08}'=\text{DEND}'+1C_{h}$
		09		$D_{09}'=\text{DEND}'+29E_{h}$
		0A		$D_{0A}'=\text{DEND}'+2F_{h}$
				*Whenever data is entered to an address, press the PAUSE button before changing the address.
11	D	03	00	After setting the data, press the PAUSE button.
12	1	00	00	After setting the data, press the PAUSE button. (End)
13				Perform the "Battery-Down voltage check".

3. Battery-Down voltage check

Mode	Camera record
Subject	Any subject

Connection

1) Connect a regulated power supply and digital voltmeter as shown on the previous page.

Check procedure:

Order	Procedure
1	Remove the adjustment remote commander and check as follows. If the check result does not satisfy the specification, repeat the adjustment.
2	Adjust the output voltage of the regulated power supply until the digital voltmeter indicates 7.20 ±0.01 Vdc.
3	Set the camera into record mode.
4	Decrease the output voltage of the regulated power supply until the digital voltmeter indicates 6.30 ±0.01 Vdc.
5	Confirm that the 🪫 mark does not appear on the EVF (viewfinder) screen. (The TALLY lamp lights.)
6	Decrease the output voltage of the regulated power supply until the digital voltmeter indicates 5.63 ±0.01 Vdc.
7	Confirm that the 🪫 mark and TALLY lamp flash about every other second on the EVF screen.
8	Decrease the output voltage of the regulated power supply until the digital voltmeter indicates 5.57 ±0.01 Vdc.
9	Confirm that the 🪫 mark and TALLY lamp flash at faster speed on the EVF screen.

4. Loading Motor ID DET Adjustment

- Perform this adjustment only when the EEPROM data (in the page D, address 95) is destroyed.
  (example)
  - If IC703 (EEPROM) on VS-113 board is replace.
  - If data in the page D, address 95 is rewritten by other incorrect data by mistake, and if the previous correct data before rewrite was not written down.
- If the following trouble symptom appears under the condition as described above, perform the " Loading Motor ID DET Adjustment" .
  1) A cassette does not enter fully into mechanism during cassette loading, then is unloaded and ejected.
  2) If a finger or like is inserted to stop the loading action during cassette loading, it takes 4 sec onds or longer before starting the eject action.

Measuring Instrument	Stop watch or equivalent
Adjustment Page	D
Adjustment Address	95

Note 1: Perform this adjustment after the machine is completely re-assembled.

Note 2: After completing the adjustment, confirm the following machine operations:
- Cassette is correctly loaded.
- If a finger or like is inserted to stop the loading action during cassette loading, it takes 1 second or less before starting the eject action.

Adjustment procedure

Order	Page	Address	Data	Procedure
1				Eject a cassette.
2	1	00	01	After setting the data, press the PAUSE button
3	D	95	30	After setting the data, press the PAUSE button
4				Close the cassette compartment.
5				During loading a cassette, press the cassette compartment in the direction of EJECT until the loading action is stopped. Measure the time (t) before eject action start after loading is stopped completely.
6				[If the time (t) is less than one second Add 10 (hexadecimal number) to the present data of page D, address 95, and perform steps 4 and 5 again. Repeat the data addition and measurement operation in the order such as 30, 40, 50,··· , E0, F0, FF while returning to steps 4 and 5 after every addition of value 10 to the data, and measuring the time (t). Find out the data when the time (t) is 5 seconds or long. Then subtract 20 (hexadecimal number) from the data, and press the PAUSE button. However, if the time (t) remains one second or shorter even data is increased up [If the time (t) is four seconds or longer] Subtract 20 (hexadecimal number) from the data of the page D, address 95, and press the PAUSE button.
7	1	00	00	After setting the data, press the PAUSE button

3-3. Capstan FG offset Adjustment

Purpose: Adjusts duty ratio of capstan FG signal
Adjustment error: Jitter can increase.

Mode	Record
Signal	Color bar
Measurement Point	CN002 pin ③ (CAP FG) (VS-113 BOARD)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	6F
Specification Value	Duty = 50 ± 1%

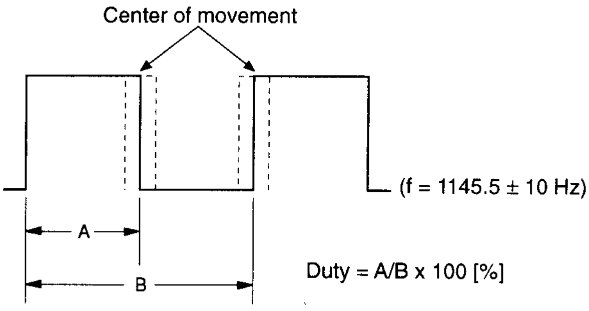


Fig 7-3-7.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	6F	80	After setting the data, press the PAUSE button.
3	D	6F		Change data using PLAY and STOP buttons so that the duty ratio A/B satisfies the specification.
4				Press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End)

3-4. ADJUSTMENT POINTS WHEN MAJOR PARTS ARE REPLACED

1. When drum is replaced

"Tape Path Position Adjustment" of mechanical section adjustment
"PB RF frequency response characteristics adjustment" of the video section adjustment
"Switching position adjustment" of the servo section adjustment

3-5. POWER SUPPLY SYSTEM ADJUSTMENT

1. Power supply voltage check (VS-113 board)

Mode	Camera record
Subject	Any subject
Measuring Equipment	Digital voltmeter
SS 3.5 V check	
Measuring Point	CN703 pin ⑱
Specification Value	3.5 ± 0.15Vdc
D 4.9 V check	
Measuring Point	CN703 pin ㉘
Specification Value	4.9 ± 0.15Vdc
AU 4.7 Vcheck	
Measuring Point	CN801 pin ②
Specification Value	4.72 ± 0.15Vdc
CAM 4.9 V check (camera mode)	
Measuring Point	CN701 pins ⑲/⑳
Specification Value	4.9 ± 0.1Vdc
EVF15 V check	
Measuring Point	CN422 pin ⑧
Specification Value	15.00 ± 0.4Vdc
AU −8.5 V check	
Measuring Point	IC801 pin ⑦
Specification Value	−8.5 ± 0.5Vdc
VIDEO 4.7V check	
Measuring Point	CN422 pin ⑨
Specification Value	4.7V ± 0.1Vdc

3-6. SERVO SYSTEM ADJUSTMENT

1. Switching position adjustment (VS-113 board)

Purpose: Adjust rotary video head switching position

Adjustment error: Skew error becomes visible on monitor display

Mode	Playback
Signal	Alignment tape: Tracking adjustment tape (WR5-1CP)
Measurement point	CH1: CN002 pin ④ (RF SWP) CH1: CN002 pin ⑨ (PB RF) } Check connector
Measuring equipment	Oscilloscope
Adjustment page	D
Adjustment address	04 05
Specification	$t_1=0\pm10\,\mu$sec

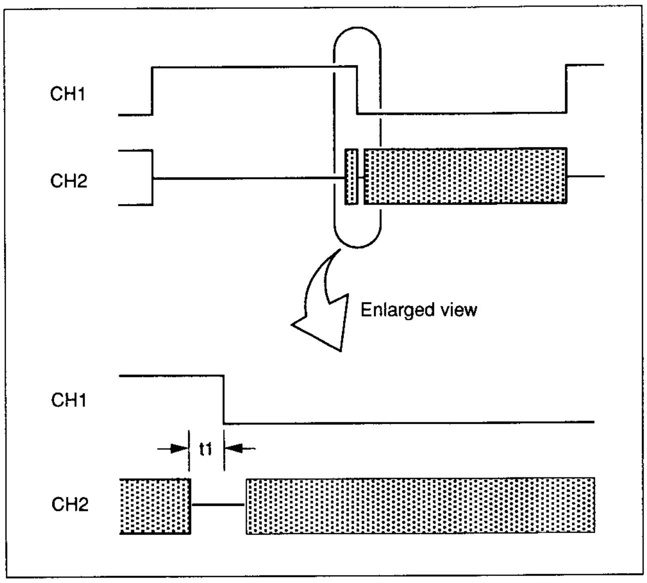


Fig. 7-3-9

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	D	05	80	After setting the data, press the PAUSE button.	
3	D	05		Change the data using the PLAY and STOP button until t1 is minimized.	Playback mode
4				Press the PAUSE button.	
5	D	04		Change the data using the PLAY and STOP button until t1 is minimized.	Playback mode
6				Press the PAUSE button.	
7				Confirm that t_1 satisfies the specification. If t_1 does not satisfy the specification, repeat steps from 3 to 7.	
8	1	00	00	After setting the data, press the PAUSE button. (End)	

3-7.VIDEO SYSTEM ADJUSTMENT

Perform the video section adjustment in the sequence as described.

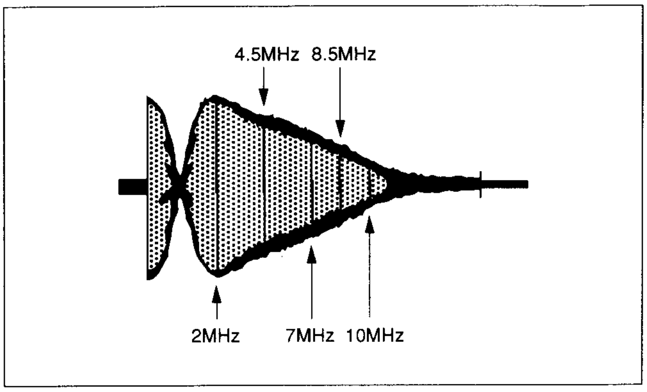
The color video signal which is supplied from the pattern generator is used as the input video signal for the video section adjustment during record mode. Confirm that the sync signal and the color burst signal conform with the specification which is specified by Fig. 7-3-1 and Fig. 7-3-2 Setup during adjustment.

Use the ME tape unless otherwise specified, Confirm that the Hi8 switch is set to "AUTO" position using the menu display.

1. PLAYBACK FREQUENCY RESPONSE CHARACTERISTICS ADJUSTMENT(VS-113BOARD)

Purpose: Remove variation of picture quality between heads due to difference of characteristics.

Adjustment error: Flicker or over-modulation of playback picture



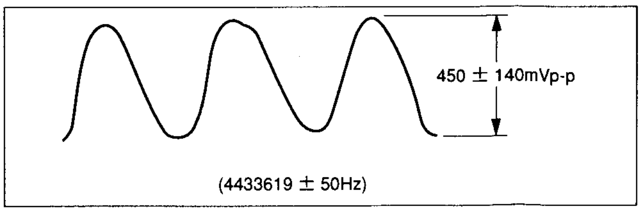
Mode	Playback
Signal	Alignment tape: Hi8 mode frequency response characteristics adjustment (WR5-7CE)
Measurement Point	CH1: CN002 pin ⑨ (PB RF) EXT TRIG: CN002 pin ④ (RF SWP) } Check connector
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5C 61 66 6B
Specification Value	4.5 MHz level : 8.5 MHz level = 3 : (2.0 ±0.2)

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	D	03	01	After storing the data, set data to 01 and press the PAUSE button.	Test mode 1
3	D	5C		Change data using PLAY and STOP buttons to adjust the level ration between 4.5 MHz level and 8.5 MHz level of the PB RF waveform of channel "1a" satisfies the specification. Press the PAUSE button.	Playback mode.
4	D	61		Adjust the channel "2a" in the same way (address 5F). Press the PAUSE button.	Playback mode.
5	D	66		Adjust the channel "1b" in the same way (address 64). Press the PAUSE button.	Playback mode.
6	D	6B		Adjust the channel "2b" in the same way (address 69). Press the PAUSE button.	Playback mode.
7	D	5A,5B,5D,5E		Input the address 5C data. Press the PAUSE button.	
8	D	5F,61,62,63		Input the address 61 data. Press the PAUSE button.	
9	D	64,65,67,68		Input the address 66 data. Press the PAUSE button.	
10	D	69,6A,6C,6D		Input the address 6B data. Press the PAUSE button.	
12	1	00	00	After setting the data, press the PAUSE button. (End)	

2. X'TAL OSCILLATOR FREQUENCY CHECK (VS-113 BOARD)

Mode	Playback
Signal	Any tape
Measurement Point	Q213 E (FSC OUT) (CL218)
Measuring Instrument	Frequency counter
Specification Value	4433619 ± 50Hz



Note: Connect a frequency counter via a high impedance (about 10 MΩ) with low capacitance (10 pF or less).

3. SYNC AGC LEVEL ADJUSTMENT (VS-113 BOARD)

Purpose:	Maintains a constant recording level of video signal.
Adjustment error:	Camera EE picture and overall picture maybe too bright r too dark.

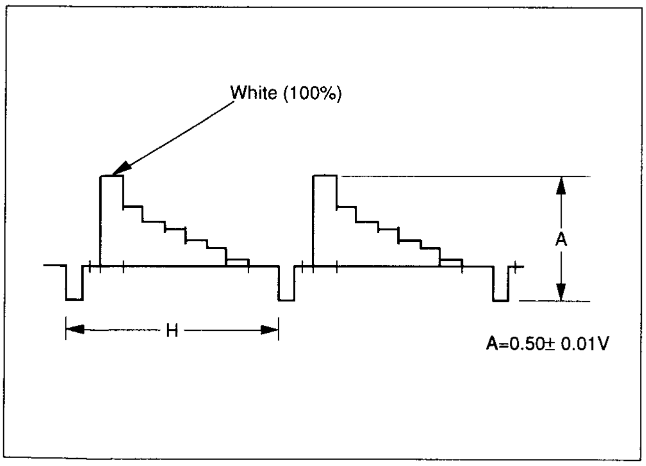
Mode	Camera mode, record
Signal	Color bar Y signal
Measurement Point	IC201 pin ㉞ (Y-Out) (CL202)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	70
Specification Value	A=0.50±0.01Vp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	D	70		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification.	(Record mode)
3				Press the PAUSE button.	
4	1	00	00	After setting the data, press the PAUSE button. (End)	

Related Adjustments:

"Emphasis input level adjustment", "PB Y level adjustment", "Y FM deviation adjustment", "Y FM carrier frequency adjustment"



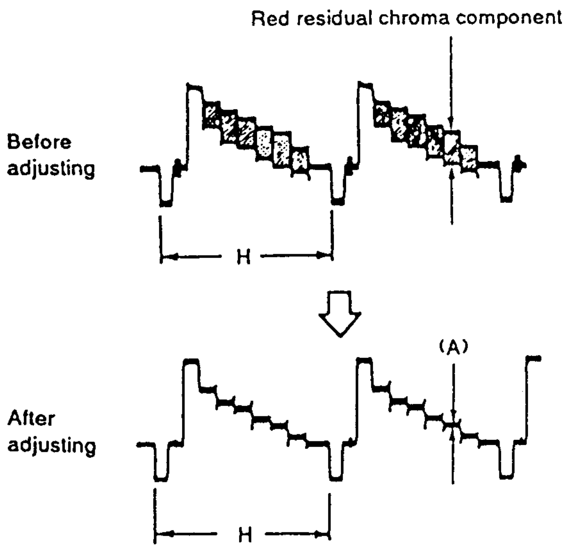
4. COMB FILTER ADJUSTMENT (VS-113 BOARD)

Purpose:	Minimizes the residual chroma component of Y comb filter output signal.
Adjustment error:	Chroma flicker at video out (pin jack) of VTR overall characteristics. Color variationis also significant.

Mode	Record (L mode)
Signal	Color bar (VIDEO IN)
Measurement Point	IC201 pin ⑭ (CL211)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment	RV201(PHASE)
Adjustment Address	71
Specification Value	Residual chroma component (A) is minimum (12 mV p-p or less).

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	71		Minimizes the chroma signal level (A).
3				Press the PAUSE button.
4	1	00	00	After setting the data, press the PAUSE button. (End)
5				Adjusts RV201 to minimize the chroma signal level (A).



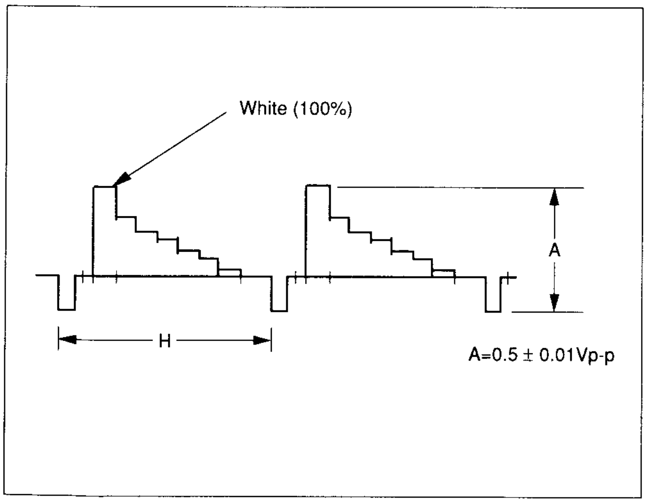
5. EMPHASIS INPUT LEVEL ADJUSTMENT (VS-113 BOARD)

Purpose:	Adjusts the record emphasis characteristics to the specification value.
Adjustment error:	Luminance signal smear, blurred picture, too much emphasized edge of overall video characteristics.

Mode	Record
Signal	Color bar signal (S VIDEO)
Measurement Point	IC201 pin ⑤ (EMPH IN)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	82
Specification Value	A=0.50±0.01Vp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	D	82		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification.	(Record mode)
3				Press the PAUSE button.	
4	1	00	00	After setting the data, press the PAUSE button. (End)	



Related Adjustments:
"PB Y level adjustment", "Normal mode Y FM deviation adjustment"

6. NORMAL MODE Y FM DEVIATION ADJUSTMENT (VS-113 BOARD) (Note 1)

Purpose: Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the frequency deviation of normal mode Y FM signal.)

Adjustment error: Too bright or too dark overall picture. Overmodulation picture. (If deviation is too wide, or too narrow.)

Mode	Record and playback
Signal	Color bar signal (S VIDEO)
Measurement Point	IC201 pin ㊱ (VIDEO OUT) (Note 2, 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	77
Specification Value	A=1.0±0.01Vp-p

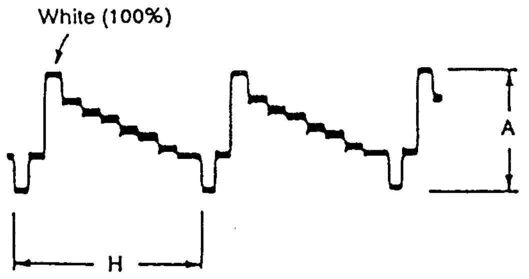
Note 1: The "Emphasis input level adjustment", "PB Y level adjustment", "DE EMPH level adjustment" must have already been completed.

Note 2: Connect plug to the S VIDEO input/output terminal.

Note 3: Terminate the Y signal connector of the S VIDEO input/output terminal with 75 Ω.

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1				Insert a normal MP type tape.	
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
3				Record a color bar signal.	(Normal MP tape)
4				Playback the recorded signal.	
5				Compare the playback signal level (A) with the specification value. If the specification value is satisfied, the adjustment is complete.	
6	D	77		If the specification value is satisfied, change data using PLAY and STOP buttons. • If the playback signal level is bigger than the specification value, decrease the data. • If the playback signal level is smaller than the specification value, increase the data.	
7				Press the PAUSE button.	
8				Return to step 3.	
9	1	00	00	After setting the data, press the PAUSE button. (End)	



Related Adjustments:

"Normal mode Y FM deviation adjustment"

7. NORMAL MODE Y FM CARRIER FREQUENCY ADJUSTMENT (VS-113 BOARD)

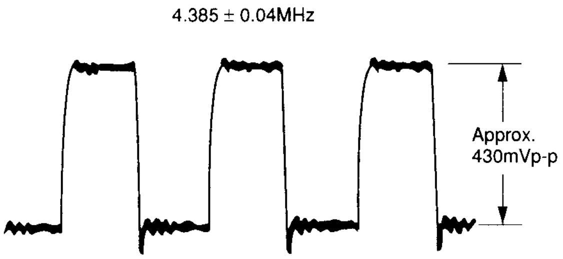
Purpose: Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the carrier frequency of normal mode Y FM signal.)

Adjustment error: (If frequency is low) Overall picture will be blurred signal. (If frequency is high) Overall picture will have black streaking noise.S/N will be deteriorated.

Mode	Record
Signal	No signal
Measurement Point	IC201 pin ㊴ (Y RF OUT) CL201
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	75
Specification Value	4.385±0.04MHz

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1				Insert a normal MP type tape.	
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
3	D	75		Change data using PLAY and STOP buttons so that the Y FM carrier frequency satisfies the specification.	(Normal MP tape record mode with no input signal)
4				Press the PAUSE button.	
5	1	00	00	After setting the data, press the PAUSE button. (End)	



8. Hi8 MODE Y FM DEVIATION ADJUSTMENT (VS-113 BOARD) (Note 1)

Purpose: Adjusts the FM signal to be recorded on tape to the Hi8 mm format. (Adjusts the deviation of Hi8 mode Y FM signal.)

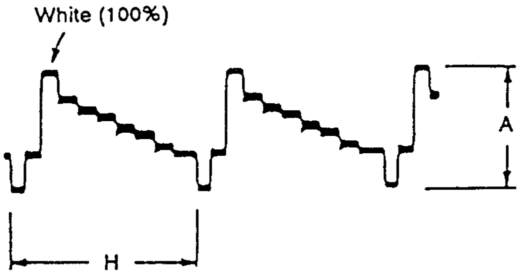
Adjustment error: Too bright or too dark overall picture. Over modulation picture. (If deviation is too wide, or too narrow.)

Mode	Record and playback
Signal	Color bar signal (S VIDEO)
Measurement Point	IC201 pin-㊱(VIDEO OUT) (Note 2, 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	76
Specification Value	A=1.0±0.01Vp-p

Note 1: The "Emphasis input level adjustment", "PB Y level adjustment", "DE EMPH level adjustment" must have already been completed.

Note 2: Connect a plug to the S VIDEO input/output terminal.

Note 3: Terminate the Y signal connector of the S VIDEO input/output terminal with 75 Ω.



Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1				Insert a normal ME type tape.	
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
3				Record color bar signal.	(Hi8 ME tape)
4				Playback the recorded segment.	
5				Compare the playback signal level with the specification value. If the specification value is satisfied, the adjustment is complete.	
6	D	76		If the specification value is satisfied, change data using PLAY and STOP buttons. • If the playback signal level is bigger than the specification value, decrease the data. • If the playback signal level is smaller than the specification value, increase the data.	
7				Press the PAUSE button.	
8				Return to step 3.	
9	1	00	00	After setting the data, press the PAUSE button. (End)	

Related Adjustments:

"Hi8 mode Y FM deviation adjustment"

9. Hi8 MODE Y FM CARRIER FREQUENCY ADJUSTMENT (VS-113 BOARD)

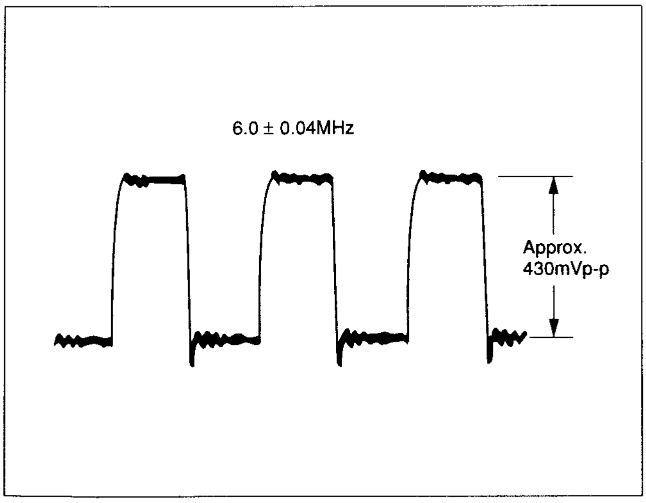
Purpose: Adjusts the FM signal to be recorded on tape to the Hi8 mm format. (Adjusts the carrier frequency of Hi8 mode Y FM signal.)

Adjustment error: (If frequency is high) Overall picture will have black streaking noise.
(If frequency is low) Overall picture will be blurred signal. Picture resolution will be deteriorated.

Mode	Record
Signal	No signal
Measurement Point	IC201 pin ㊴ (Y RF OUT) CL201
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	74
Specification Value	6.0±0.04MHz

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1				Insert a normal ME type tape.	
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
3	D	74		Change data using PLAY and STOP buttons so that the Y FM carrier frequency satisfies the specification.	(Hi8 ME tape record mode with no input signal)
4				Press the PAUSE button.	
5	1	00	00	After setting the data, press the PAUSE button. (End)	



10. PB DE-EMPH LEVEL ADJUSTMENT (VS-113 BOARD)

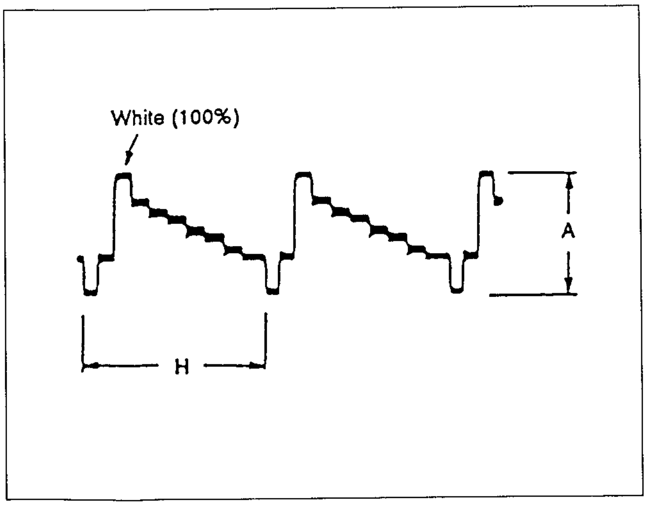
Purpose: Adjusts the playback Y signal level to be input to de-emphasis circuit.

Adjustment error: Playback picture can be too bright or too dark.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5CSP • Hi 8 mode WR5-8CSE
Measurement Point	IC201 pin ⑰ (DL IN2) ; Hi8 ; Normal
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 87 • Hi8 mode 86
Specification Value	A=0.50±0.01Vp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2				Playback the color bar segment of the normal mode alignment tape (WR5-5CSP).	
3	D	87		Change data so that the Y signal level (A) satisfies the specification.	
4				Press the PAUSE button.	
5				Playback the color bar segment of the Hi8 mode alignment tape (WR5-8CSE).	
6	D	86		Change data so that the Y signal level (A) satisfies the specification.	
7				Press the PAUSE button.	
8	1	00	00	After setting the data, press the PAUSE button. (End)	



11. PB Y OUT LEVEL ADJUSTMENT (VS-113 BOARD)

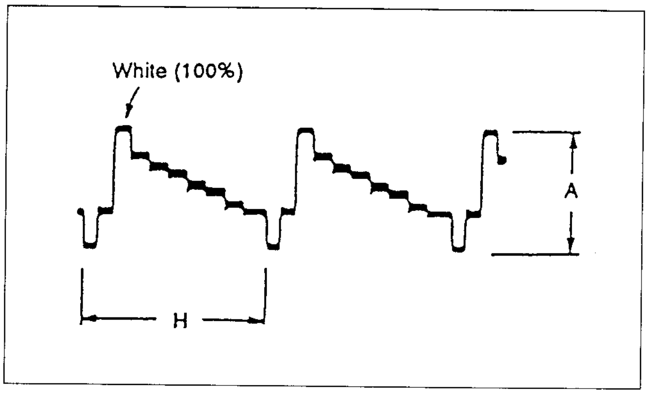
Purpose: Adjusts playback video level for the specification value.

Adjustment error: Playback picture can be too brighter or too darker than normal picture.

Note 1: Connect a plug to the S VIDEO input/output terminal.

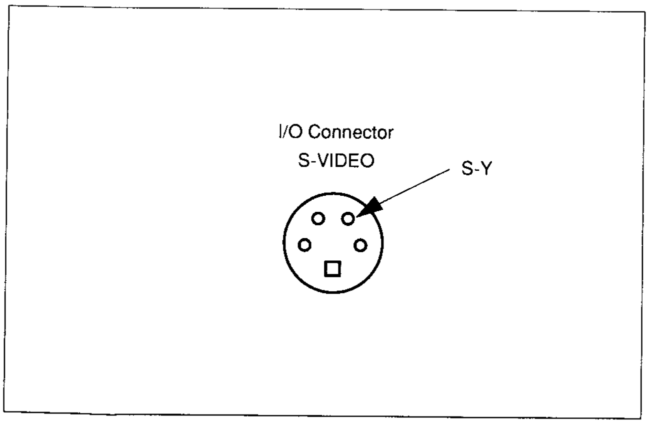
Note 2: Terminate the Y signal connector of the S VIDEO input/output terminal with 75 Ω.

Mode	Playback	
Signal	Alignment tape: color bar segment of operation check tape • Normal mode • Hi 8 mode	 WR5-5CSP WR5-8CSE
Measurement Point	CN423 pin ⑦ (S-Y I/O) (Note 1, 2)	
Measuring Instrument	Oscilloscope	
Adjustment Page	D	
Adjustment Address	83	Hi8 mode/Normal mode
Specification Value	A=1.00±0.01V A=1.00±0.05V	Hi8 mode Normal mode



Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2				Playback the color bar segment of the normal and Hi8 alignment tapes	(WR5-8CSE playback)
3	D	83		Change data using PLAY and STOP buttons so that the playback signal level (A) satisfies the specification.	
4				Press the PAUSE button.	
5	1	00	00	After setting the data, press the PAUSE button. (End)	



12. CHROMA EMPHASIS ADJUSTMENT (VS-113BOARD)

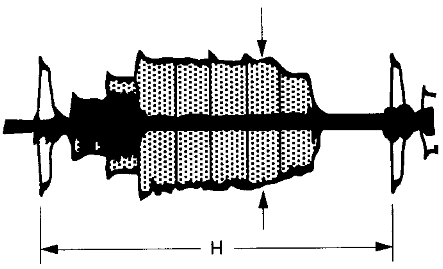
Purpose:	Remove variation of chroma emphasis filter.
Adjustment error:	Boundaries of playback colors have unnaturalcolor.

Mode	Record (S-VIDEO)
Signal	Color bar signal (S-VIDEO input)
Measurement Point	IC202 pin ③ (REC C RF)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	80, 81
Specification Value	Minimizes the chroma component (A in the following diagram)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button.(Preparation)
2	D	80		Change data so that the chroma component (A) is minimized.
3				Press the PAUSE button.
4	D	81		Subtract 6 (hexadecimal value) from the address 80 data. Set the result of subtraction to the address: 81.
5				Press the PAUSE button.
6	1	00	00	After setting the data, press the PAUSE button. (End)

Minimize the amplitude at the latter half of the red signal.



13. REC Y LEVEL ADJUSTMENT (VS-113 BOARD)

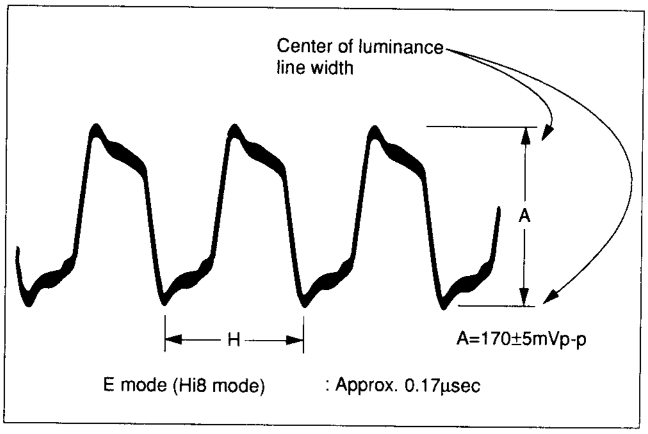
Purpose: Maintains a constant level of Y FM, chroma AFM and ATF signals when recording on tape.

Adjustment error: (If level is low) Poor S/N of playback picture or servo is unlocked.
(If level is high) Black streaking noise appears.

Connection: Connect CN002 pin ④ (RF SWP) to GND.

NOTE: Use the ME type tape. If an oscilloscope has the bandwidth limiting switch, set to off position. (Select the wide band mode.)

Mode	Record
Signal	No signal
Measurement Point	CN002 pin ⑥ (check connector)
Measuring Instrument	Oscilloscope Frequency bandwidth limitation: 20 MHz OFF
Adjustment Page	D
Adjustment Address	40 (Hi8)
Specification Value	A=170±5mVp-p



Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1				Confirm that Hi8 switch is set to "AUTO" on the menu display.	
2	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
3				Insert the ME tape to establish record mode. (Setting ME Hi8 mode)	
4	D	44, 48, 4C		Change data to FF.	
5	D			Press the PAUSE button.	
6	D	40		Change data using PLAY and STOP buttons so that the REC Y RF (Hi8 ME tape record mode) level (A) satisfies the specification.	(ME Hi8 mode adjustment)
7	D			Press the PAUSE button.	
8	D	40		Read the address: 40 data. Call the address: 40 data "D40".	
9	D	44,48 4C		Write D40 data to the addressed 44, 48, and 4C respectively.	(Press the PAUSE button.)
10	D	41,45, 49, 4D		Add 14 to D40 data and write the result of addition to addresses: 41 45, 49, and 4D respectively.	(Press the PAUSE button.)
11	D	42,43,46,47 4A,4B,4E,4F		Add D to D40 data and write the result of addition to addresses: 42, 43, 46, 47, 4A, 4B, 4E and 4F respectively.	(Press the PAUSE button.)
12	1	00	00	After setting the data, press the PAUSE button. (End)	

14. REC L LEVEL ADJUSTMENT (VS-113 BOARD)

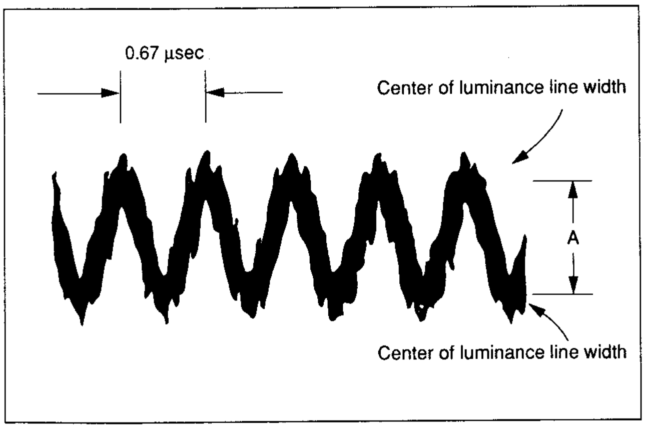
Mode	Record (SP)
Signal	No signal
Measurement Point	CN002 pin ⑥ (check connector)
Measuring Instrument	Oscilloscope Frequency bandwidth limitation: 20 MHz OFF
Adjustment Page	D
Adjustment Address	39
Specification Value	A=9.025±0.3mV (AFM Level)

Purpose: Maintains a constant level of chroma, AFM and ATF signals when recording on tape.

Adjustment error: If level is low, audio distortion increases, ATF servo loses lock, and chroma S/N deteriorates.
If level is high, Y S/N deteriorates and whitestreaking noise appears.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2	D	39		Change data using PLAY and STOP buttons so that the AFM signal level satisfies the specification. Use the Hi8 ME tape.
3				Press the PAUSE button.
4				Read the page: D, address: 39 data. Call this data D 39.
5	D	3B,3D,3F		Set the data : D 39 to every address of page : D, from address : 3B, 3D, 3F.
6	D	3A,3C,3E		Add +C to D 39 data and write the result of addition to addresses : 3A, 3C and 3E respectively.
7	1	00	00	After setting the data, press the PAUSE button. (End)


0.67 μsec
Center of luminance line width
A
Center of luminance line width

15. REC C LEVEL ADJUSTMENT (VS-113 BOARD)

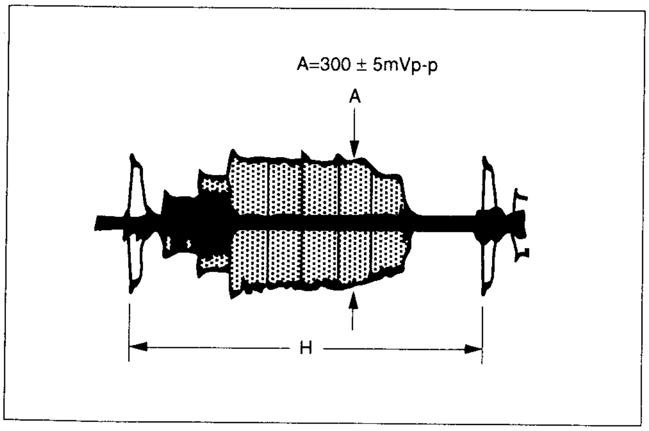
Purpose: Maintains a constant chroma level when recording on tape.

Adjustment error: If level is low, overall S/N deteriorates. If level is high, S/N of Y signal at deep color deteriorates and white streaking noise appears.

Mode	Record (SP)
Signal	Color bar signal (S-VIDEO)
Measurement Point	IC202 pin ③(REC C RF)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	30
Specification Value	A=300±5mVp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	D	30		Change data using PLAY and STOP buttons so that the flat portion of the "red" in the REC C signal amplitude (A) satisfies the specification.	(Record mode. Use the Hi8 ME tape.)
3				Press the PAUSE button.	
4				Read the page: D, address: 30 data. Call this data D30.	
5				Set the data: D30 to every addresses of page: D, from address: 31, 32, 33, 34, 35, 36, 37. (Press the PAUSE button every times D30 is set to each address.)	
6	1	00	00	After setting the data, press the PAUSE button. (End)	



6-4. AUDIO SYSTEM ADJUSTMENT

- Input the color bar signal to the AV jack as the video input signal for adjustment.
- Use the Hi8 ME tape unless otherwise specified.
- The adjustment items requiring both channels L and R show the R channel adjustment in parenthesis [ ].
- Select the HiFi STEREO position of the menu display.
- Set the bilingual switch to OFF position of the menu display unless otherwise specified.

[Audio measuring equipment connection]

Connect the audio measuring equipment as shown in Fig. 7-4-1 in addition to the video measuring equipment. Set the power switch to "VIDEO" position for adjustment.

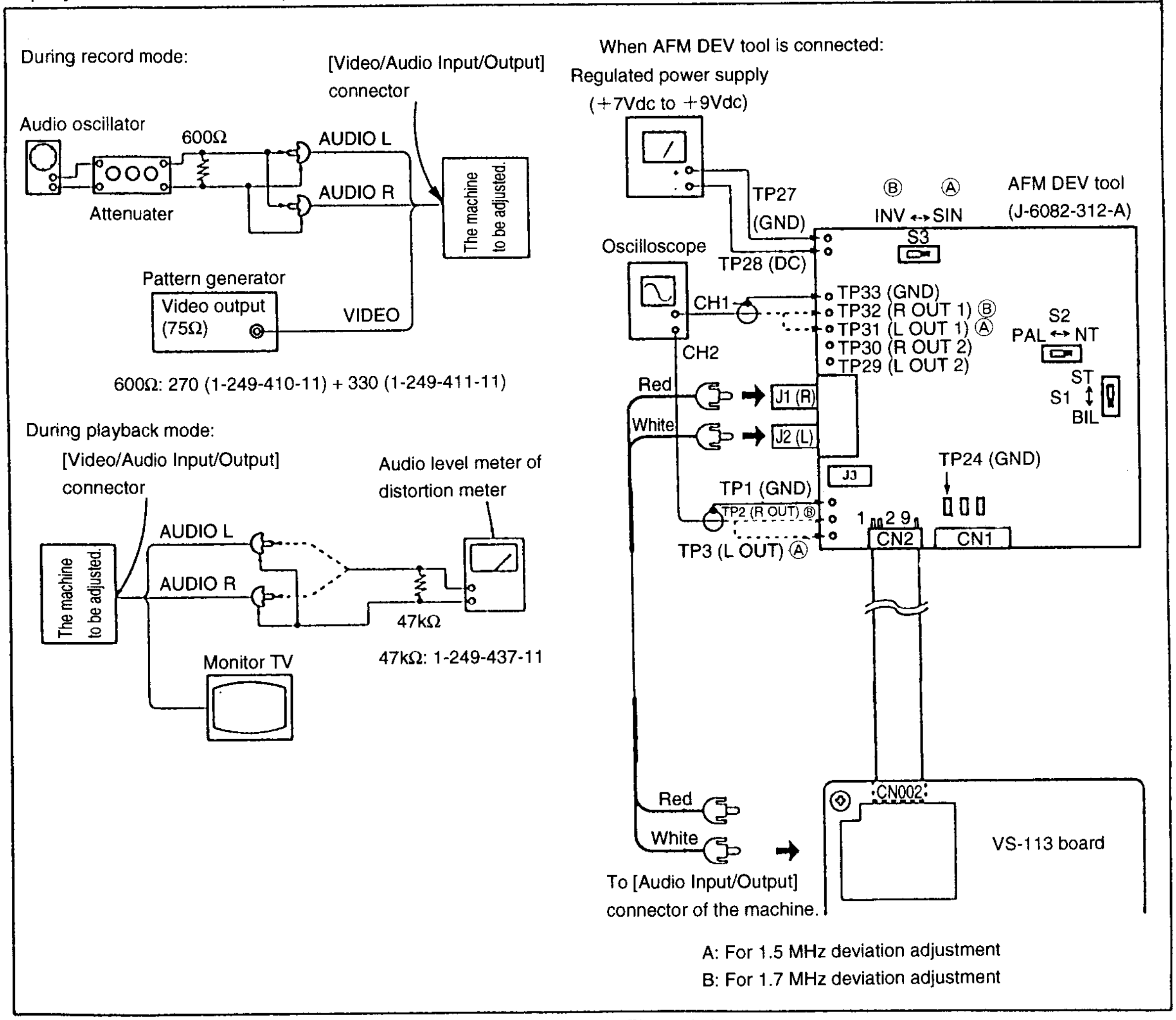

During record mode:
[Video/Audio Input/Output] connector
Audio oscillator
600Ω
AUDIO L
AUDIO R
Attenuater
The machine to be adjusted.
Pattern generator
Video output (75Ω)
VIDEO
600Ω: 270 (1-249-410-11) + 330 (1-249-411-11)
During playback mode:
[Video/Audio Input/Output] connector
Audio level meter of distortion meter
AUDIO L
AUDIO R
The machine to be adjusted.
47kΩ
Monitor TV
47kΩ: 1-249-437-11
When AFM DEV tool is connected:
Regulated power supply (+7Vdc to +9Vdc)
TP27 (GND)
Ⓑ Ⓐ
INV ↔ SIN
S3
AFM DEV tool (J-6082-312-A)
Oscilloscope
TP28 (DC)
CH1
CH2
TP33 (GND)
TP32 (R OUT 1) Ⓑ
TP31 (L OUT 1) Ⓐ
TP30 (R OUT 2)
TP29 (L OUT 2)
S2
PAL ↔ NT
ST
S1
BIL
Red
White
J1 (R)
J2 (L)
J3
TP24 (GND)
TP1 (GND)
TP2 (R OUT) Ⓑ
TP3 (L OUT) Ⓐ
1 2 9
CN2
CN1
CN002
Red
White
VS-113 board
To [Audio Input/Output] connector of the machine.
A: For 1.5 MHz deviation adjustment
B: For 1.7 MHz deviation adjustment

Fig 7-4-1.

4-1. EE-OUTPUT LEVEL CHECK

Mode	Record
Signal	400 Hz, -7.5 dBs Audio input terminal, left [right]
Measurement Point	Headphone terminal, left (no load) Headphone terminal, right (no load)
Measuring Instrument	Oscilloscope
Specification Value	−7.0 ± 2.0 dBs

Check procedure:

1) Check that the 400 Hz signal level satisfies the specification.

4-2. 1.5 MHz DEVIATION ADJUSTMENT

Purpose:	Determines spectrum of the modulated L-ch (L+R/2 signal) signal during recording.
Adjustment error:	Audio signal crosstalk deteriorates and audio level decreases in both record and playback modes.

Mode	Record
Signal	AFM DEV adjustment tool output signal to left and right channels of audio input connector
Measurement Point	CH1: TP31 of the AFM DEV adjustment tool CH2: TP3 of the AFM DEV adjustment tool
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	D
Adjustment Address	8F
Specification Value	Difference (A) between CH1 and CH2 signals is 40 mV or less.

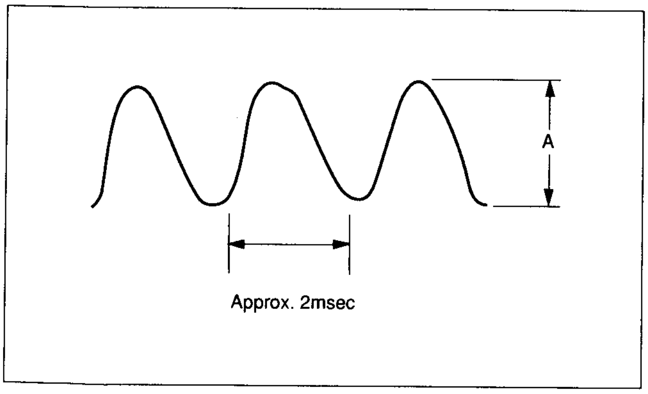
Connection

1) Connect CN2 of the AFM DEV adjustment tool and CN002 of VS-113 board.
2) Connect the audio output terminals (J1, J2) of the AFM DEV adjustment tool and Video/Audio input/output connector of the machine to be adjusted.
3) Connect DC power supply (+7 to +9V dc) to TP28 (DC), and TP27 (GND) of the AFM DEV adjustment tool.
4) Set the switches of the AFM DEV adjustment tool to the following positions.

S1···············BIL position
S2···············PAL position
S3···············SIN position

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Select the same vertical sensitivity of CH1 and CH2 of oscilloscope.
2				Set the oscilloscope to ADD mode and set CH2 to INV mode.
3	1	00	01	After setting the data, press the PAUSE button. (Preparation)
4	D	8F		Change data using PLAY and STOP buttons so that the audio level difference (A) is minimized.
5				Press the PAUSE button.
6	1	00	00	After setting the data, press the PAUSE button. (End)



4-3. 1.7MHz DEVIATION ADJUSTMENT

Purpose:	Determines spectrum of the modulated R-ch (L-R/2 signal) signal during recording.
Adjustment error:	Audio signal crosstalk deteriorates and audio level decreases in both record and playback modes.

Mode	Record
Signal	AFM DEV adjustment tool output signal to left and right channels of audio input connector
Measurement Point	CH1: TP32 of the AFM DEV adjustment tool CH2: TP2 of the AFM DEV adjustment tool
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	D
Adjustment Address	8E
Specification Value	Difference (A) between CH1 and CH2 signals is 40 mV or less.

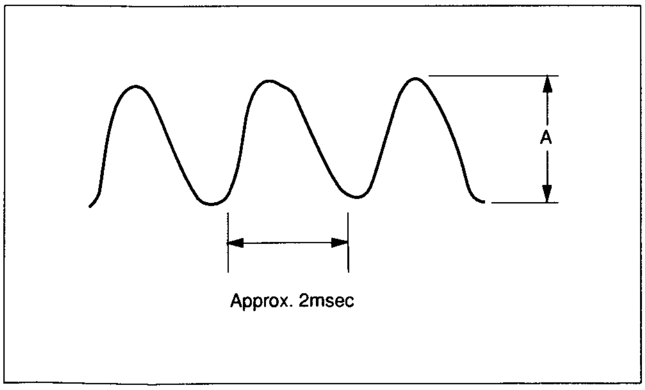
Connection

1) Connect CN2 of the AFM DEV adjustment tool and CN002 of VS-113 board.
2) Connect the audio output terminals (J1, J2) of the AFM DEV adjustment tool and Video/Audio input/output connector of the machine to be adjusted.
3) Connect DC power supply (+7 to +9V dc) to TP28 (DC), and TP27 (GND) of the AFM DEV adjustment tool.
4) Set the switches of the AFM DEV adjustment tool to the following positions.

   S1···············BIL position
   S2···············PAL position
   S3···············INV position

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Select the same vertical sensitivity of CH1 and CH2 of oscilloscope.
2				Set the oscilloscope to ADD mode and set CH2 to INV mode.
3	1	00	01	After setting the data, press the PAUSE button. (Preparation)
4	D	8E		Change data using PLAY and STOP buttons so that the audio level difference (A) is minimized.
5				Press the PAUSE button.
6	1	00	00	After setting the data, press the PAUSE button. (End)



4-4. BPF fo ADJUSTMENT

Purpose: Optimizes fo of BPF inside IC.

Adjustment error: Incorrect discrimination of monaural/stereo and increase of noise at high output of audio volume are resulted.

Mode	Playback
Signal	Alignment tape: Segment for AFM deviation check
Measurement Point	Audio output terminal left [right]
Measuring Instrument	Distortion meter
Adjustment Page	D
Adjustment Address	8D
Specification Value	Distortion factor of left and right channels is equal (within ±1%) and is minimized.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	1	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Set the bilingual switch to "SUB" position.
3	D	8D		Change data using PLAY and STOP buttons so that distortion factor is minimized.
4				Press the PAUSE button.
5				Set the bilingual switch to "MAIN" position.
6	D	8D		Change data using PLAY and STOP buttons so that distortion factor is minimized.
7				Press the PAUSE button.
8				Repeat steps 2 to 7 to set the address: 8D data until the distortion factor at "SUB" and "MAIN" positions is equal and minimized.
9				Press the PAUSE button.
10	1	00	00	After setting the data, press the PAUSE button. (End)

4-5. OVERALL SIGNAL LEVEL AND DISTORTION CHECK

Purpose: Checks distortion level.

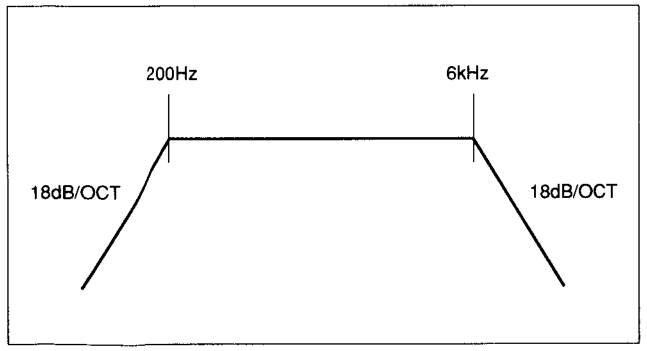
Mode	Self-record and playback
Signal	400 Hz, −7.5 dBs: Audio input terminal left [right] No signal:Audio input terminal right [left]
Measurement Point	Audio output terminal left [right]
Measuring Instrument	Audio level meter and distortion meter
Specification Value	Level: −7.5±2.0dBs Distortion:0.8% or less (Note 2)

Note 1: The position in parenthesis [ ] indicates the measurement point when checking the right channel.

Note 2: The value when band-pass filter of 200 Hz to 6 kHz is used.

Check procedure:

Order	Procedure
1	Input 400 Hz, −7.5 dBs signal to audio input terminal left [right].Note: Be sure to insert a shorting plug to the connector which is left open with no input signal.
2	Record the signal.
3	Remove the input signal and playback the recorded segment.
4	Confirm that 400 Hz signal level at audio input terminal left [right] is −7.5 ±2 dBs and distortion is 0.8% or less. (Note 2)



4-6. SEPARATION CHECK

Purpose: Checks the channel separation.

Mode	Self-record and playback
Signal	No signal:Audio input terminal left [right] 400 Hz, −7.5 dBs:to audio input terminal right [left]
Measurement Point	Audio output terminal left [right]
Measuring Instrument	Audio level meter (wide band)
Specification Value	−27.5 dBs or less

Note: The position in parenthesis [ ] indicates the measurement point when checking the right channel.

Check procedure:

Order	Procedure
1	Insert a shorting plug to audio input terminal left [right] and input 400 Hz, −7.5 dBs signal to audio input terminal right [left].
2	Record the signal.
3	Remove the input signal.
4	Playback the recorded segment.
5	Confirm that the crosstalk (400 Hz) level at audio input terminal left [right] is −27.5 dBs or less.

4-7. OVERALL NOISE LEVEL CHECK

Purpose: Checks noise level.

Mode	Self-record and playback
Signal	No signal: Audio input terminal left and right
Measurement Point	Audio output terminal left [right]
Measuring Instrument	Audio level meter (using IHF-A curve weighting filter)
Specification Value	−62.5 dBs or less

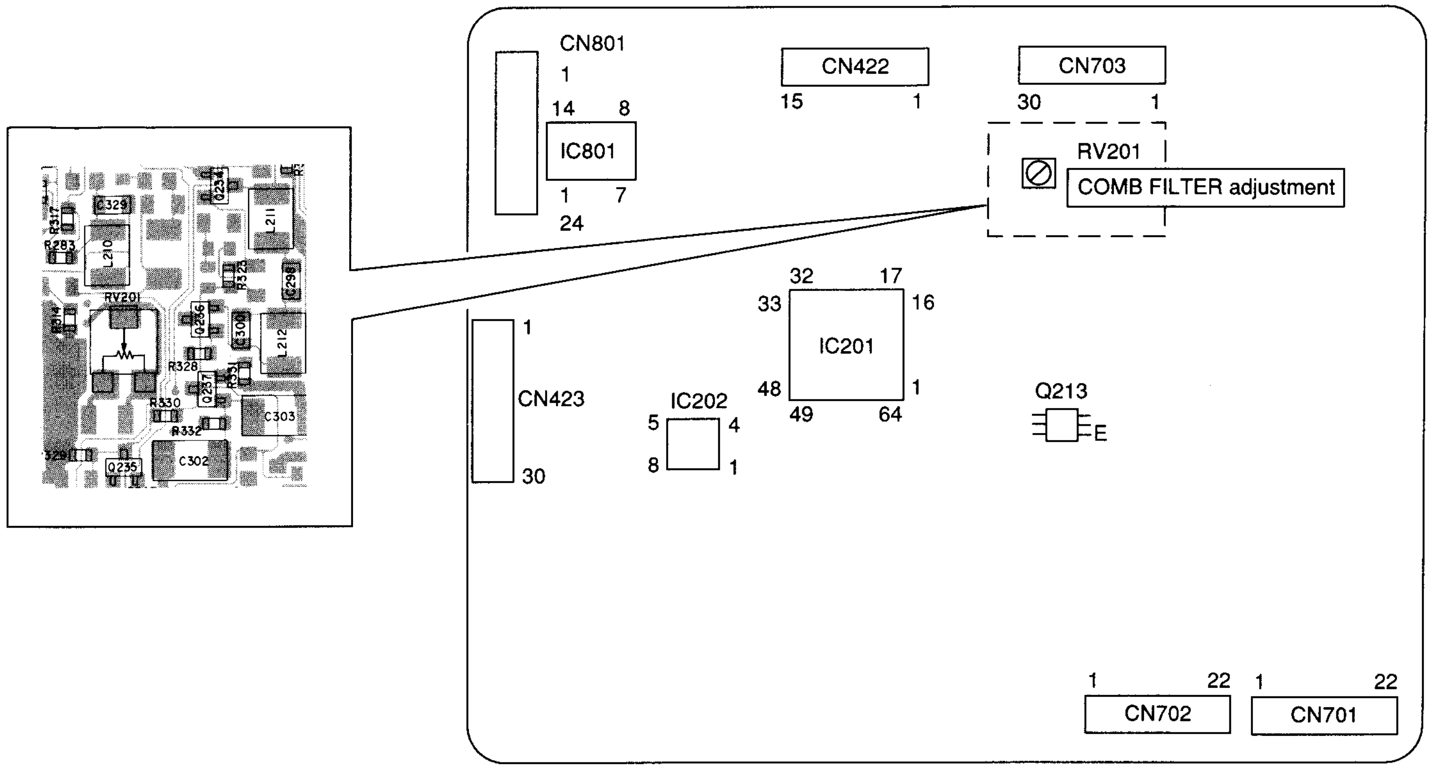
Note: The position in parenthesis [ ] indicates the measurement point when checking the right channel.

Check procedure:

Order	Procedure
1	Insert a shorting plug to audio input terminal left and right.
2	Make recording.
3	Remove the shorting plug.
4	Playback the recorded segment.
5	Confirm that the noise level at audio input terminal left [right] is −62.5 dBs or less.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VS-113 BOARD (SIDE A)



VS-113 BOARD (SIDE B)

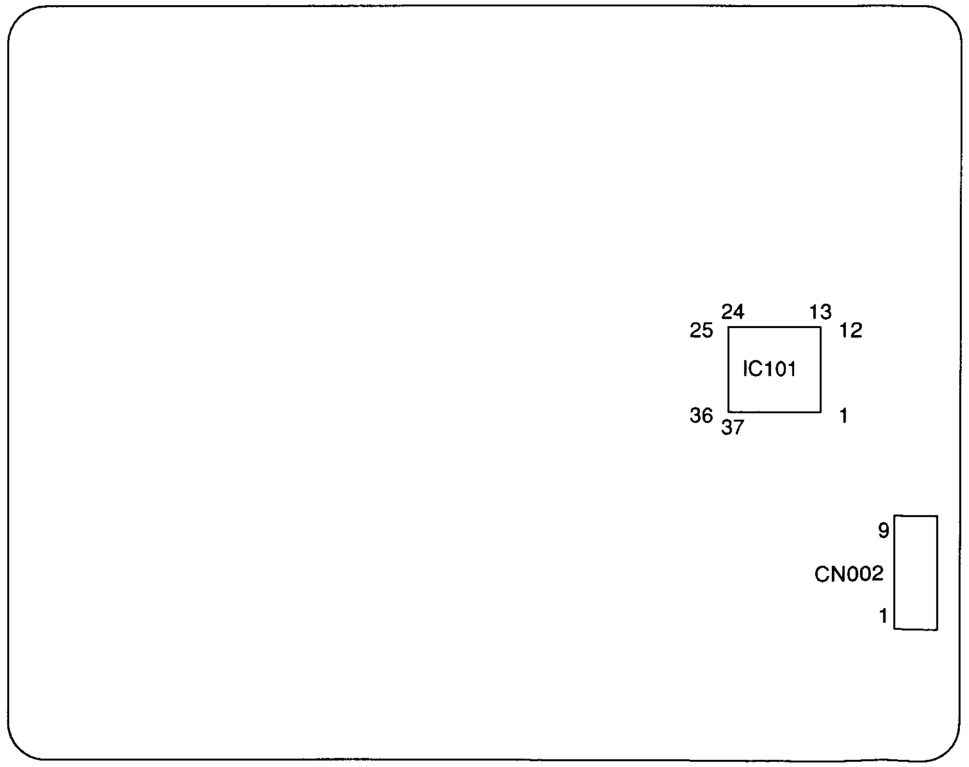


TABLE OF CONTENTS

7-5. SERVICE MODE OPERATION

5-1. ADJUSTMENT REMOTE COMMANDER 7-76

5-2. THE VTR,CAM MAIN POWER FORCED-ON MODE 7-77

5-3. HOW TO OPERATE A CAMCORDER WITHOUT CASSETTE 7-77

5-4. PAGE F ADDRESS LIST 7-78

5-5. DATA PROCESSING 7-79

5-6.SERVICE MODE DESCRIPTION..........7-81
  1. Test mode setting 7-81
  2. Emergency memory address..........7-81
  3. EMG code (Emergency code) 7-82
  4. MSW code 7-82
  5. Bit value discrimination 7-83
  6. LED check 7-84
  7. Key input check 7-84
  8. Key input check (A/D port)..........7-85
  9. Individual operation of drum, capstan, loading motor..........7-85
  10. Page D address list..........7-86

7-5. SERVICE MODE OPERATION

5-1. ADJUSTMENT REMOTE COMMANDER

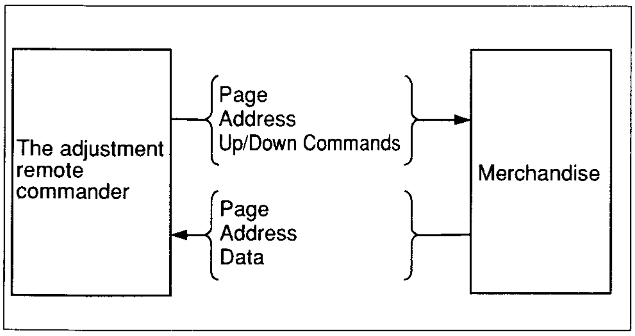
Mechanical Adjustment

The mechanism can be adjusted after the cassette compartment is removed, if the adjustment remote commander is used. Use the adjustment remote commander in the following cases:

- Let the machine enter into the TEST mode so that the machine operates with the cassette compartment removed.
- Let the machine enter into the PATH mode in order to perform the tape path adjustment.

Electrical Adjustment

The adjustment remote commander is used in order to change the operation coefficient of the signal process, or to change the EVR data. The adjustment remote commander is connected with the merchandise through the remote control signal line (LANC) using the bi-directional communication.



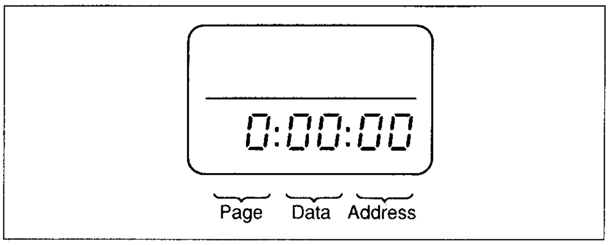
As the result of the bi-directional communication, data is stored in the non-volatile memory.

Note) If the adjustment remote commander is incorrectly operated, the correct adjustment data can be deleted. To prevent accidental erasure of the adjustment data, it is recommended to take note as follows:

- Before starting adjustment, take note of the all adjustment data.
- Whenever one item of adjustment is complete, take note of the adjustment data of the item.

Operation Procedure

1) Connect the adjustment remote commander to the REMOTE connector (JACK block).
2) Select the HOLD (SERVICE) or ADJ. position of the HOLD (or ADJ.) switch of the adjustment remote commander. If the connection is correct, the following display appears on the LCD.



3) The adjustment remote commander is operated as follows when changing the EVR data and other data for adjustment.

- How to select a page

  There are sixteen pages starting from page 0 to page F. Press the EDIT SEARCH (+) button or the EDIT SEARCH (−) button.

EDIT SEARCH (+) button	Page increases.
EDIT SEARCH (−) button	Page decreases.

- The page number is indicated by the hexadecimal notation on the LCD of the adjustment remote commander.

LCD display	0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F
Decimal notation after conversion	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- How to select an address

  There are 256 addresses starting from address 00 to address FF. Press the FF [key mark] or REW [key mark] to select an address.

FF [key mark]	Address increases.
REW [key mark]	Address decreases.

- How to store data

  Press the PAUSE button to store the adjustment data into the non-volatile memory.

4) Set data 01 to the page: 6, address: 00.

   After this setting is made, the adjustment of the page: F, address: 01 to BF is made possible.

5) After completing the all adjustments, turn OFF the main power supply (7.2V) once. The adjustment mode is canceled.。

5-2.THE VTR,CAM MAIN FORCED-ON MODE

1) There are two input signal connections when making adjustment: The input video signal is connected to the AV jack, and the input video signal is connected from the CAMERA input for adjustment. The CAMERA input is used for a part of video adjustment. Connect the input video signal to the AV jack in most of the adjustment.
   - To select the AV jack input, either set the POWER switch to "VIDEO" position or establish the "VTR main POWER forced-ON" mode using the adjustment remote commander. (See note 1.)
   - To select the CAMERA input, either set the POWER switch to "CAMERA" or establish the " CAMERA + VTR main POWER forced-ON" mode using the adjustment remote commander. (See note 2.)

   After completing the adjustment, be sure to cancel the "VTR main POWER forced-ON" mode or the "CAMERA + VTR main POWER forced-ON" mode as described below.

2) The lens block (CD-132, VC-158, SE-41P board) is not necessary for video system adjustment. Remove the following two connectors when making the video system adjustment:

   1. VC-158 board, CN601 (16 pins, 0.5 mm)
   2. VC-158 board, CN752 (26 pins, 0.5 mm)

3) The MIC AMP board (MS-26P, HJ-15P board) is necessary for the audio system adjustment only. Remove the following connector when the MIC AMP board is not necessary.

   1. VS-113 board, CN801 (27P, 0.5mm).

Note 1) How to establish the "VTR main POWER forced-ON" mode (AV jack mode)

1) Set data: 01 to page: 1, address: 00.
2) Set data: 02 to page: D, address: 03.

If the above setting is made, a VTR can be operated even the POWER switch is broken or disconnected from the flexible cable. After completing the adjustment, release the VTR main POWER forced-ON mode.

Note 2) How to establish the "CAMERA + VTR main POWER forced-ON" mode (CAMERA input mode)

1) Set data: 01 to page: 1, address: 00.
2) Set data: 03 to page: D, address: 03 and press the PAUSE button of the adjustment remote commander.

If the above setting is made, a VTR can be operated even the POWER switch is broken or disconnected from the flexible cable. After completing the adjustment, release the VTR main POWER forced-ON mode.

Note 3) How to cancel the "main POWER forced-ON" mode

1) Set data: 01 to page: 1, address: 00.
2) Set data: 00 to page: D, address: 03 and press the PAUSE button of the adjustment remote commander.
3) Set data: 00 to page: 1, address: 00.

5-3. HOW TO OPERATE A CAMCORDER WITHOUT CASSETTE

1) Remove the cabinet and supply the main power while referring to section "3. DISASSEMBLY". (This enables the mechanical deck to operate.)
2) Connect the adjustment remote commander to the REMOTE connector.
3) Select the HOLD (SERVICE) or ADJ. position of the HOLD (or ADJ.) switch of the adjustment remote commander.
4) Close the cassette compartment without inserting a cassette and set the Camcorder to the "loading completed" state.
5) Set data: 01 to page: 1, address: 00.
6) Set data: 01 to page: D, address: 02 and press the PAUSE button of the adjustment remote commander.
7) Set data: 04 to page: D, address: 03 and press the PAUSE button of the adjustment remote commander.
8) Turn off the main power of the system once.
9) Turn on the main power.
10) Confirm that the page: D, address: 02 has the data: 01. ☆

After completing the above setting, the Camcorder can be operated without a cassette.

☆ If the main power is turned off once, be sure to perform step 10). After confirming the operation of the system, be sure to perform the "Procedure after Confirming Operation of the System", note 4.

Note 4) "Procedure after Confirming Operation of the System"

1) Set data: 01 to page: 1, address: 00.
2) Set data: 00 to page: D, address: 02 and press the PAUSE button of the adjustment remote commander.
3) Set data: 00 to page: D, address: 03 and press the PAUSE button of the adjustment remote commander.
4) Set data: 00 to page: 1, address: 00.
5) Remove the power supply cable from the system.

If the "forced operation without cassette" mode and "the "main POWER forced-ON" mode are used at the same time, set the following data to the page: D, address: 03:

"VTR main POWER forced-ON" mode 06
"CAMERA main POWER forced-ON" mode 05

5-4. Page F Address List

Note 1: Data already stored in the adjustment data memo column are fixed values.

Note 2: The initial adjustment data values are the values which exist immediately after the execution of "F Page Data Initialization" and "F Page Data Modification". These differ from the values which exist after all adjustment have been performed.

Note 3: There are cases where data has been entered into F page addresses between CO and EF, but these are not related to the adjustments.

Address	Adjustment Data	
	Initial Value	Memo Column
00	00	
01	01	
02	00	00
03	17	
04	80	
05	80	
06	80	
07	80	
08	2D	
09	26	
0A	FA	
0B	F1	
0C	30	
0D	00	
0E	58	
0F	00	
10	E0	E0
11	8F	
12	6C	
13	36	
14	3C	
15	B6	
16	DD	
17	0F	
18	3D	
19	12	
1A	D6	
1B	23	
1C	–	
1D	06	
1E	80	
1F	80	
20–3D	–	
3E	00	00
3F	00	

Table 7-5-1(a).

Address	Adjustment Data	
	Initial Value	Memo Column
40	00	
41	00	
42	00	
43	00	
44	00	
45	00	
46	00	
47	00	
48	00	
49	00	
4A	00	
4B	00	
4C	00	
4D	00	
4E	–	
4F	20	20
50~62	–	
63	26	26
64–FF	–	

Table 7-5-1(b).

5-5. DATA PROCESSING

In some adjustment items, data appears in hexadecimal numbers on the DDS display or on the adjustment remote commander. Maintenance engineers are expected to convert the displayed hexadecimal numbers to the corresponding decimal numbers using the following conversion table. Make a required calculation described in each adjustment item. Then re-convert the result of calculation back from the decimal numbers to the corresponding hexadecimal numbers using the following conversion table.

Hexadecimal-Decimal Conversion Table

② ↓ (column D)

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (C)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shows the display on the adjustment remote commander.
(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the hexadecimal number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table 7-5-2.

< How to convert the decimal number to hexadecimal number >

The decimal numbers are divided into following three categories. Calculation method is different in three categories respectively.

(1) 0~255 → 00h~FFh
(2) 256~4095 → 0100h~0FFFh
(3) 4096~65536 → 1000h~FFFFh

If the decimal number fall into the category (1);

1) Divide the decimal number by 16. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A−B) ×16. Result is "C".
4) "B" is the second digit number of the hexadecimal number and "C" is the first digit number of the hexadecimal number. (BC)h

(Example)
If the decimal number is "189";
1) 189÷16=11.8125 ....(A)
↑
2) (B)
3) (11.8125−11)×16=13 ....(C)
4) 189 → (BD)h is obtained.

If the decimal number fall into the category (2);

1) Divide the decimal number by 256. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A−B) ×256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation (C−D) ×16. Result is "E".
6) "B" is the third digit number, "D" is the second digit number and "E" is the first digit number of the hexadecimal number. (BDE)h

(Example)
If the decimal number is "2100";
1) 2100÷256=8.203125 (A)
↑
2) (B)
3) (8.203125−8)×256÷16=3.25 ....(C)
↑
4) (D)
5) (3.25−3)×16=4 ....(E)
6) 2100 → (834)h is obtained.

If the decimal number fall into the category (3);

1) Divide the decimal number by 4096. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A−B) × 4096 ÷ 256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation(C−D)× 256 ÷ 16.Result is "E".
6) Take the integer portion of the number "E" as "F".
7) Calculate the equation (E−F) ×16. Result is "G". (Round the number "G" to count fractions of 0.5 and over as a unit and cut away the rest.)
8) "B" is the fourth digit number, "D" third digit number, "F" is the second digit number and "G" is the first digit number of the hexadecimal number. (BDFG)h

(Example)
If the decimal number is "31814";
1) 31814÷4096=7.7670898 ....(A)
↑
2) (B)
3) (7.7670898−7)×4096÷256=12.273436 ....(C)
↑
4) (D)
5) (12.273436−12)×256÷16=4.374976 ....(E)
↑
6) (F)
7) (4.374976−4)×16=5.999616
(Round the number to count fractions of 0.5 and over as a unit and cut away the rest.)
↓
8) 6 ....(G)
9) 31814 → (7C46)h is obtained.

< How to convert the hexadecimal number to decimal number >

If the hexadecimal number is (ABCD)h, the decimal number is calculated by the following equation.
(A×4096)+(B×256)+(C×16)+(D×1)=decimal number

(Example) If the hexadecimal number is "(3BA4)h":
(3×4096)+(11×256)+(10×16)+(4×1)=15268

5-6. SERVICE MODE DESCRIPTION

1. Test mode setting

Set and release the test modes as follows:
Select page: 1, address: 00, and set data: 01 to this address (preparation), before attempting any data setting.

Page D	Address 02 (mechanism controller)

Data	Function
00	Normal
01	Test mode 1 Inhibiting detection of various abnormalities and releasing it. Drum, capstan, loading motor, reel, tape top and tape end, DEW, SP/LP automatic discrimination prohibit, manual switch, 5 minute pause/release prohibit, power off prohibit/release at battery end

- For page D, the set data will be stored in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (7.2 Vdc).
- After completing adjustment and repair, be sure to set data: 00 and press the PAUSE button of the adjustment remote commander.

Page D	Address 03 (mode controller)

Data	Function	
00	Normal	
01	Test mode 1	Camera power supply
02	Test mode 2	VTR power supply
03	Test mode 3	VTR + camera power supply

2. Emergency memory address

Page D	Address E4 to EF

Address	Contents
E4	EMG code when the last emergency has occurred.
E6	Upper: MSW code of the machine status in which transition has started then the last emergency occurred. Lower: MSW code when the last emergency has occurred.
E7	Lower: MSW code of the machine movement target when the last emergency has occurred.
E8	EMG code when the second emergency has occurred.
EA	Upper: MSW code of the machine status in which transition has started then the second emergency occurred. Lower: MSW code when the second emergency has occurred.
EB	Lower: MSW code of the machine movement target when the second emergency has occurred.
EC	EMG code when the first emergency has occurred.
EE	Upper: MSW code of the machine status in which transition has started then the first emergency occurred. Lower: MSW code when the first emergency has occurred.
EF	Lower: MSW code of the machine movement target when the first emergency has occurred.

When no emergency has occurred, data 00 will be written in the above address (E4 to EF). When the first emergency occurs, the data corresponding to the emergency will be written in the address (EC to EF). In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address E8 to EB) for the second emergency.
The data corresponding to the emergency occurring last will be written in the address (E4 to E7) for the last emergency.
Therefore, the data of address E4 to E7 are renewed each time an emergency occurs.

Note: 1: When adjustment/repair is completed, be sure to set data: 00 to each address from E4 to EF as follows:
1) Select page: 1, address: 00 and set data: 01, and press the PAUSE button.
2) Select page: D, address: E4 and set data: 00, and press the PAUSE button.
3) Select page: D, address: E5 and set data: 00, and press the PAUSE button.
4) Select page: D, address: E6 to EF sequentially and set data: 00, and press the PAUSE button to each address.
5) Select page: 1, address: 00 and set data: 00, and press the PAUSE button.

2: When rewriting the data, be sure to press the PAUSE button of the remote commander after each setting of the data.

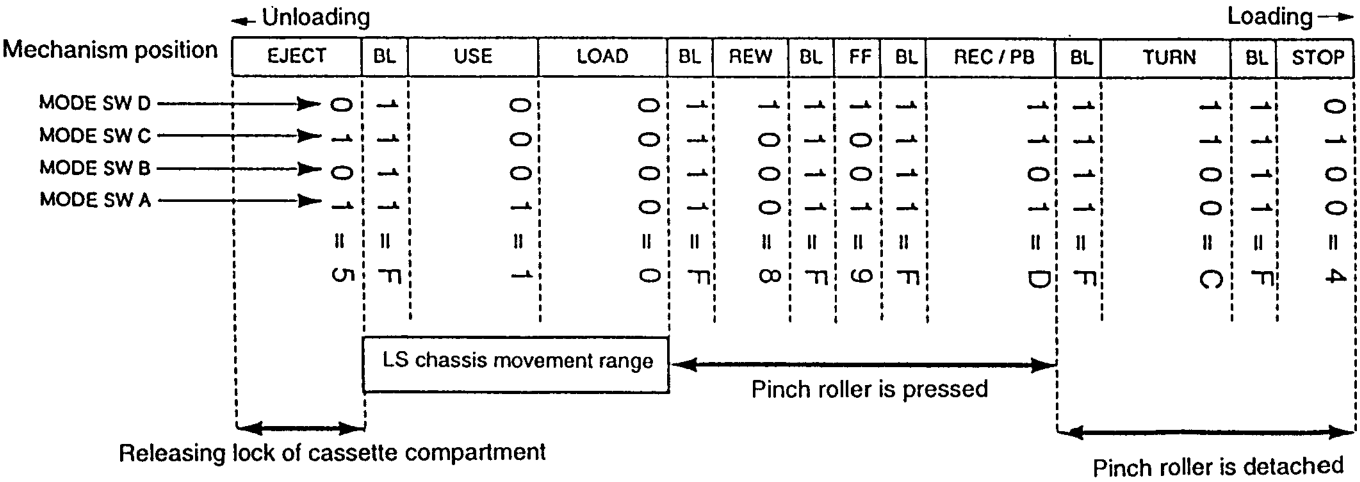
3. EMG code (Emergency code)

The emergency codes are stored in the addresses: E4, E8 and EC corresponding to the type of errors occurred. Types of error code are shown in the following table.

Code	Error Status
00	No error
10	Loading motor error during loading
11	Loading motor error during unloading
20	T reel error during unloading
21	S reel error during unloading
22	T reel error in normal mode
23	S reel error in normal mode
30	FG error during capstan startup
31	FG error during capstan normal speed
40	FG error during drum startup
41	PG error during drum startup
42	FG error during normal rotation of drum
43	PG error during normal rotation of drum
44	Phase error during normal rotation of drum

4. MSW code

- The lower digit data of the page D: address: E6, EA and EE indicate the MSW code (mode switch code) when an error occurs.
- The upper digit data of the page D: address: E6, EA and EE indicate the MSW code (mode switch code) of mode transition (mode SW code before mode transition) when an error occurs.
- The lower digit data of the page D: address: E7, EB and EE indicate the MSW code (mode switch code) of transition target (code to which the machine is going to enter) when an error occurs.

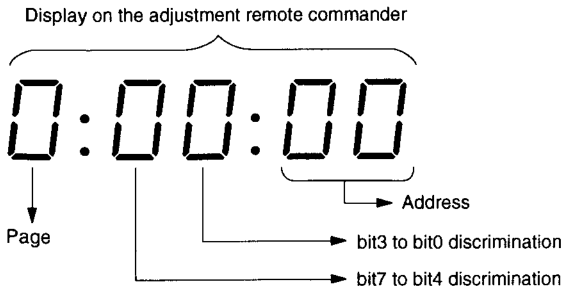

Unloading
Loading
Mechanism position
EJECT
BL
USE
LOAD
BL
REW
BL
FF
BL
REC / PB
BL
TURN
BL
STOP
MODE SW D
MODE SW C
MODE SW B
MODE SW A
0 1 0 1 = 5
1 1 1 1 = F
0 0 0 1 = 1
0 0 0 0 = 0
1 1 1 1 = F
1 0 0 0 = 8
1 1 1 1 = F
1 0 0 1 = 9
1 1 1 1 = F
1 1 0 1 = D
1 1 1 1 = F
1 1 0 0 = C
1 1 1 1 = F
0 1 0 0 = 4
LS chassis movement range
Pinch roller is pressed
Releasing lock of cassette compartment
Pinch roller is detached

Mechanism Position	MSW Code	Detail of Content
EJECT	5	The position where the cassette compartment lock is released.The end position in the unthread-end direction. The mechanism does not move any more in the direction of unloading direction.
BL	F	Blank code. The code which separates a code from another code. The machine does not stop at the code while is it operating.
USE	1	EJECT completed position. If a cassette is ejected, it stops at this position. If mechanism moves in the loading direction, the TG1 guide and the TG9 guide start moving.
LOAD	0	The code during loading and unloading. This code is output while the LS chassis is moving.
REW	8	REW position. The position to activate the REW and FR/REV.
FF	9	FF position This position is used by the FF mode and the CUE mode from FF.
RP	D	PB, REC, CUE REV and PAUSE position. The pinch roller is pressed and the tension regulator is turned ON.
TURN	C	The position which is used to move the swing gear from S to T or from T to S.Normal STOP position.
STOP	4	The pinch roller is detached, tension regulator is turned OFF, and both reels are braked. Mechanism does not move any more in the loading direction.
NULL	3	The code which does not exist in this mechanism deck. If an error occurs when loading motor is not driven,this code is stored in memory.

Table 7-5-3.

5. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is "1" or "0".


Display on the adjustment remote commander
0:00:00
Page
Address
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the Adjustment Remote Commander	Bit value			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(C)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

Table 7-5-4.

6. LED check

Data	Operation
00	Normal
10	Tally LED lights.

Operating procedure:

Order	Page	Address	Date	Procedure
1				Turn CAM POWER ON.
2				Check LED.
3	2	00	00	After setting the data, press the PAUSE button.
4	2	B0	10	Tally LED light.
5				Turn VTR POWER-ON.
6				Check that VTR operation switches light.

7. Key input check

Bit	Key Switch	Switch Condition
0	Date (+) (CF-4220<R>block S007)	"1" =OFF "0" =ON
1	Time (CF-4220<R>block S008)	
2	Cassette eject (CF-4220<U>block S033)	
3	Video power supply (CF-4220<R>block S035)	
4	CC DOWN (mechanism)	
5	Start/Stop (CF-4220<L>block S027, S028)	
6	Camera power supply (CF-4220<R>block S035)	

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	3F	After setting the data, press the PAUSE button.
2	2	01		ON/OFF of each key switch can be known by discriminating the bit value of each display data.

8. Key input check (A/D port)

- CF-4220 board

Display data Address	00 to 10	11 to 4C	4D to 7E	7F to B1	B2 to E1	E2 to FF
4A (KAI0: IC702 (82))	□(STOP) (L block S016)	Fast forward (L block S013)	Record (L block S017, 018)	Date search (L block S019)		No key input
4B (KAI1: IC702 (83))	Instant stop (L block S015)	Rewind (L block S012)	Playback (L block S014)	Display (R block S011)	WideTV (R block S039)	No key input
4C (KAI2: IC702 (84))				Press menu (R block S037)	Menu cover sw (R block S036)	No key input
4D (KAI3: IC702 (85))	Counter reset (R block S009)	Back light correction (U block S032)	Fader (R block S005)		Camera shake correction (R block S006)	No key input
4E (KAI4: IC702 (86))	End search (R block S010)	Edit search(+) (U block S030)	Edit search(−) (U block S031)			
4F (KAI5: IC702 (87))	Audio volume (+) (L block S020)	Audio volume (−) (L block S021)		BRIGHT (+) (L block S022)	BRIGHT (−) (L block S023)	No key input

Table 7-5-5.

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	01	After setting the data, press the PAUSE button.
2	2	4A to 4F		From the display data of each address, it can be known which key is being pressed.

9.Individual operation of drum, capstan and loading motor

Data	Operation
00	Normal
02	Drum rotation in normal direction
04	Drum rotation in reverse direction
06	Capstan rotation in normal direction
08	Capstan rotation in reverse direction
0A	Loading motor rotation in normal direction
0C	Loading motor rotation in reverse direction
01	All motors stop.
03	
05	
07	
09	
0B	
0D	
0F	

Table 7-5-6.

Operating procedure:

Order	Page	Address	Data	Procedure
1	3	00	02	After setting the data, press the PAUSE button.
2	3	0E	01	Individual operation of motors is approved.
3	3	11		Motor can be operated individually by setting the above described data.
4				Turn the main power (7.2 V) OFF.

10. Page D address list

Note 1: The adjustment data initial value is the data input before performing video section adjustment. (page D) if the page D data has been erased due to some reason.

Note2: The data written in the adjustment data memo column are fixed.
After adjustment, check that these data have not been rewritten by mistake

Note3: There are cases where data has been entered into D page address 91 to AF, BC to D3 and F0 to FF, but these are not relate to the adjustment.

Note4: BATT A/D data (Vref) is the page 2, category 01, address 49 data (00 to FF).

Address	Adjustment data	
	Initial value	Memo column
00	00	
01	00	
02	00	00
03	00	00
04	00	
05	80	
06	BATT A/D value (V ref) when battery terminal is 5.6V.	
07	Vref+05h	
08	Vref+1Ch	
09	Vref+29Ch	
0A	Vref+2Fh	
0B	Vref+09h	
0C	0C	0C
0D	00	00
0E	00	00
0F	05	05
10	40	40
11	23	23
12	00	00
13	00	00
14	B8	B8
15	9A	9A
16	06	06
17	06: AEP, UK 1F: E, Hongkong	06: AEP, UK 1F: E, Hongkong
18	E5	E5
19	0E	0E
1A	D4: AEP, UK F4: E, Hongkong	D4: AEP, UK F4: E, Hongkong
1B	6F	61
1C	7F	7F
1D	00	00
1E	00	00
1F	00	00
20	5A	5A
21	08	08
22	29	29
23	03	03
24	77	77
25	FF	FF
26	1C	1C

TABLE 7-5-7(a).

Address	Adjustment data	
	Initial value	Memo column
27	25	25
28	AD	AD
29	AD	AD
2A	9F	9F
2B	BF	BF
2C	A8	A8
2D	AD	AD
2E	9C	9C
2F	AD	AD
30	9C	
31	9C	
32	9C	
33	9C	
34	9C	9C
35	9C	9C
36	9C	9C
37	9C	9C
38	D0	
39	DC	
3A	D0	
3B	DC	
3C	D0	
3D	DC	
3E	D0	
3F	DC	
40	AD	
41	BE	
42	B9	
43	B9	
44	AD	
45	BE	
46	B9	
47	B9	
48	AD	
49	BE	
4A	B9	
4B	B9	
4C	AD	
4D	BE	

TABLE 7-5-7(b).

Address	Adjustment data	
	Initial value	Memo column
4E	B9	
4F	B9	
50	D4	D4
51	D4	D4
52	D4	D4
53	D4	D4
54	B4	B4
55	AA	AA
56	90	90
57	76	76
58	76	76
59	76	76
5A	D7	
5B	D7	
5C	D7	
5D	D7	
5E	D7	
5F	D7	
60	D7	
61	D7	
62	D7	
63	D7	
64	D7	
65	D7	
66	D7	
67	D7	
68	D7	
69	D7	
6A	D7	
6B	D7	
6C	D7	
6D	D7	
6E	C0	C0
6F	3C	3C
70	94	
71	9A	
72	B0	B0
73	B0	B0
74	D6	
75	C8	
76	AF	
77	B0	
78	45	45

TABLE 7-5-7(c).

Address	Adjustment data	
	Initial value	Memo column
79	4B	4B
7A	8A	8A
7B	8A	8A
7C	40	40
7D	30	30
7E	64	64
7F	64	64
80	91	
81	99	
82	AC	
83	A0	
84	FF	
85	A0	A0
86	95	
87	8D	
88	00	00
89	00	00
8A	00	00
8B	50	50
8C	BC	
8D	BC	
8E	60	
8F	45	
90	00	00
91	FF	FF
92	FF	FF
93	FF	FF
94	76	76
95	C0	C0
96~A3	FF	FF
A4	A0	
A5	AE	AE
A6	95	95
A7	7A	
A8	6A	
A9	70	
AA	90	
AB	35	
AC	7A	7A
AD	7A	7A
AE	70	70
AF	F0	F0
B0	FF	FF

TABLE 7-5-7(d).

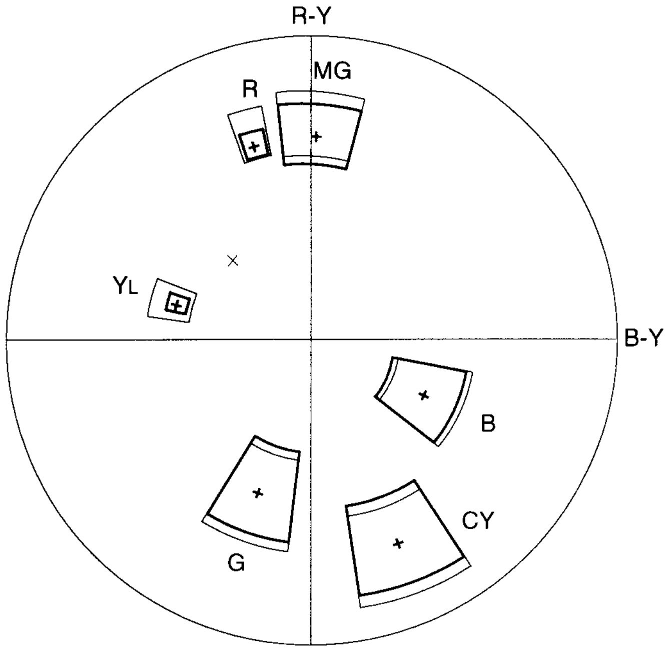
Address	Adjustment data	
	Initial value	Memo column
B1	FF	FF
B2	FF	FF
B3	FF	FF
B4	FF	FF
B5	FF	FF
B6	FF	FF
B7	FF	FF
B8	FF	FF
B9	FF	FF
BA	FF	FF
BB	FF	FF
BC~D3	FF	
D4	FF	FF
D5	FF	FF
D6	FF	FF
D7	FF	FF
D8	FF	FF
D9	FF	FF
DA	FF	FF
DB	FF	FF
DC	FF	FF
DD	FF	FF
DE	FF	FF
DF	FF	FF
E0	FF	FF
E1	FF	FF
E2	FF	FF
E3	FF	FF
E4	00	
E5	00	
E6	00	
E7	00	
E8	00	
E9	00	
EA	00	
EB	00	
EC	00	
ED	00	
EE	00	
EF	00	
F0~FF	FF	

TABLE 7-5-7(e).

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

⊞ : WEIGHT OFF MODE
☐ : WEIGHT ON MODE

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

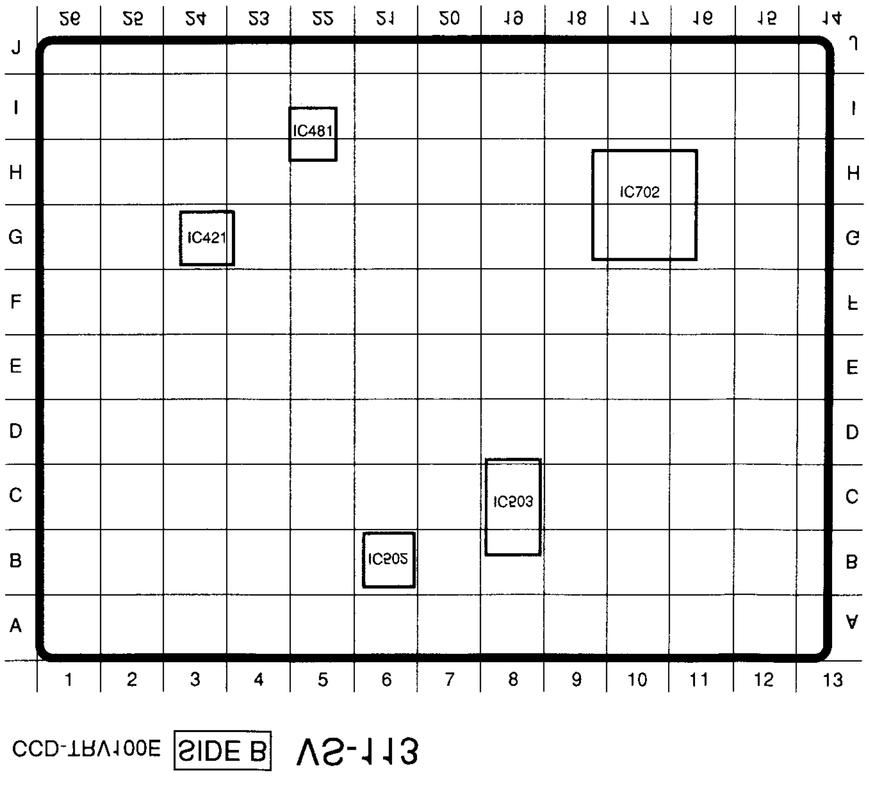

R-Y
B-Y
MG
R
YL
B
CY
G

CCD-TRV100E

〈PARTS REFERENCE SHEET〉

You can find the parts position of mount locations applying to VS-113 board of a set.

VS-113 CCD-TRV100E SIDE A


IC481
IC702
IC421
IC203
IC205
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
VS-113 CCD-TRV100E SIDE B